Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Sound Waves, Telephone Magazine and The Telephone

Vol. XVII | CHICAGO, SATURDAY, APRIL 24, 1909 | No. 17

PUBLISHED EVERY SATURDAY BY THE

Telephony Publishing Company

Monadnock Block, Chicago

Telephone Harrison 2951

H. B. McMeal, President — F. S. Kenfield, 1st Vice-President
W. H. Graffis, 2d Vice-President — H. D. Fargo, Secretary-Treasurer

Edited by H. B. McMeal and Franklin H. Reed

The present publication comprises

Vol. 56	The Telephone	No. 17
Vol. 33	Telephone Magazine	No. 17
Vol. 19	American Telephone Journal	No. 17
Vol. 17	Sound Waves	No. 17
Vol. 17	Telephony	No. 17

TERMS OF SUBSCRIPTION:

United States, Cuba and Mexico.....per year, $3.00
Canada 4.00
Other Foreign Countries within the Postal Union..... 5.00

NOTICE TO ADVERTISERS

Changes of advertising copy should reach this office ten days in advance of date of issue. New advertisements accepted up to noon of Monday for the paper dated Saturday of the same week.

Copyright, 1909, by Telephony Publishing Company

Entered as second-class matter September 4, 1908, at the post office at Chicago, Ill., under act of March 3, 1879.

CHICAGO, SATURDAY, APRIL 24, 1909.

CONTENTS.

Editorial 481
The Eastern Traffic Association..... 483
Maintenance Economies. By G. E. Bickley..... 484
History of the Automatic Telephone. By Arthur Bessey Smith 486
The Development Study (Concluded). By S. D. Levings..... 488
Argument of New York Independent Companies Against Public Service Commission Control..... 490
District Meetings: Their Influence on Progress. By W. R. Barkdull 492
The Telephone in the Courts. By A. H. McMillan..... 494
Telephone News.....495, 496, 497
Practical Questions and Answers..... 498
Letters on Practical Subjects..... 499
Telephone Patents 500
In the Manufacturing Field..... 501
Condensed News Reports.....502, 503, 504

The Duty of Clear Depreciation Accounting.

A clear and interesting discussion of the necessity for providing for depreciation out of earnings is furnished in the opinion of the U. S. Supreme Court in the case of the city of Knoxville vs. Knoxville Water Company. As a basis for municipal rate regulation an appraisal was made, and in the company's original presentation of the case, as the opinion of the Supreme Court states: "To arrive at the present value of the plant, large deductions were made on account of the depreciation. This depreciation was divided into complete depreciation and incomplete depreciation. The complete depreciation represented that part of the plant, which, through destruction or obsolescence, had actually perished as useful property. The incomplete depreciation represented the impairment in value of the parts of the plant which remained in existence and were continued in use. It was urgently contended that, in fixing upon the value of the plant upon which the company was entitled to earn a reasonable return, the amounts of complete and incomplete depreciation should be added to the present value of the surviving parts."

Now, it has been a principle of good business ever since trade existed, that any fixtures should, during their life, earn their entire first cost, plus interest on the investment, plus a profit. But the Supreme Court has expressed its disapproval of the idea of making new equipment earn its own purchase price, and also that of the material which it replaces, when the latter was not operated at a rate to provide for its normal depreciation. Here are the words, referring to the decision of a lower court:

"The court refused to approve this method, and we think properly refused. A water plant, with all its additions begins to depreciate in value from the moment of its use. Before coming to the question of profit at all the company is entitled to earn a sufficient sum annually to provide not only for current repairs, but for making good the depreciation and replacing the parts of the property when they come to the end of their life. The company is not bound to see its property gradually waste without making provisions out of its earnings for replacements. It is entitled to see that from earnings the value of the property invested is kept unimpaired, so that, at the end of any given term of years, the original investment remains as it was at the beginning. It is not only the right of the

company to make such a provision, but it is its duty to its bond and stockholders, and, in the case of a public service corporation, at least, its plain duty to the public. If a different course were pursued the only method of providing for replacement of property which has ceased to be useful would be the investment of new capital and the issue of new bonds or stocks. This course would lead to a constantly increasing variance between present value and bond and stock capitalization,—a tendency which would inevitably lead to disaster either to the stockholders or to the public, or both. If, however, a company fails to perform this plain duty and to exact sufficient returns to keep the investment unimpaired, whether this is the result of unwarranted dividends upon over issues of securities, or of ommission to exact proper prices for the output, the fault is its own. When, therefore, a public regulation of its prices comes under the question, the true value of the property then employed for the purpose of earning a return cannot be enhanced by a consideration of the errors in the management which have been committed in the past."

This quotation lays down a principle which, it is safe to assume, will be followed in future plans for the regulation of public utilities. It is the only plan of appraisal which can be considered fair, by even the most interested person, if any change takes place in the ownership of securities, or the personnel and individual requirements of the great body of users of its service, and of such changes there are many thousands in every year of a large corporation's history. It is a good thing for the public to anticipate the possibility of regulation, which will enforce this principle. Buyers of securities for permanent investment will wish to have the management set aside the full quota for depreciation even in dull years. Accounting systems will be reformed so as to show what the depreciation is, and how it is met, rather than hide it, even while still providing for it.

Soldering.

A correspondent describes his annoyances, arising from unsuccessful attempts to manipulate the hot soldering copper, in terms which are at once humorous and pathetic. All of us who have, as the phrase goes, "worked from the ground up," have had our trials with that piece of copper, watching the play of colors over its surface, to determine the precise moment of maximum effective heat—and withdraw it from the flame before the "tin" should burn off. We have learned that soldering is an art, like swimming, or riding a bicycle, to be learned only by attentive and patient practice, but which once acquired, is retained through life.

A careful workman seldom allows his copper to "burn." But few know how simply a "burned" copper may be coated with a smooth and durable "tin" without recourse to the time honored, but burdensome manipulation in a bath of sal ammoniac, or paste, and hard solder. The easiest way, and most practical, is to "tin" the copper with resin core solder. To do this effectively the copper is first smoothed and brightened with a file. Then it is placed in the flame, preferably in the part where the gas burns blue, and heated until the solder will but just melt on the bright point. By passing the solder over it quickly, rubbing it gently against the copper, a smooth and durable "tin" will be imparted.

In using a well tinned copper, the most common faults arise from over or underheating. The effect of using a copper which is too hot is to waste solder, burn tinsel or fine wire, drive off the resin in steam, or burn the tin out of the solder, giving it a granular appearance. The result is a joint of bad appearance, likely to come apart after the equipment is in use.

A copper insufficiently heated will not "carry" solder or fuse it firmly to the two pieces of metal to be joined. Often, when resin core solder is used, the resin gathers between a globule of solder and the wires, making a "resin joint," which gives a poor contact, mechanically weak, and liable to spread under the influence of vibration or tension.

A skillful workman keeps two or three coppers occupied in rotation, always using one at the proper heat, and having another ready for his hand when the first gets cold. He judges the heat by the color quivering on the surface, sometimes holding the heated tool near his face, or hand, as a check. He works rapidly, and makes every motion count, applying solder and copper to the contacts simultaneously.

When tinsel is to be soldered into tips, it is well to twist, or wind with a fine wire the end of the tinsel, dip it into solder, and then fill the cup with solder and resin. When this is properly heated, if the prepared tinsel end is forced into it, and held for an instant, a firm and neat joint results.

Good soldering is the means of saving a great deal of time which would otherwise be spent in inspection and tests. We have known a man who could not solder to acquire a position as engineer, but would never recommend a person as a troubleman until he had demonstrated his ability in this fundamental branch of his work.

Operators' Loads.

Very often the manager of a growing exchange goes on a still hunt for arguments to present to subscribers who believe that it ought to cost less per telephone to operate a big exchange than a little one. Sometimes he tries to figure his operating loads, and finds that he cannot tell how many calls per day per subscriber there have been at any period in the history of his exchange. He would like to show that each subscriber is using more service than formerly, but he has not the figures. There are many questions arising in the management of an exchange, which for correct decision require a knowledge of how many calls each operator averages during each hour of the day. Yet this information is not available in nearly as many exchanges as one would suppose, knowing how useful it is. The time has passed when any one can answer the question "What is the load on your operators' positions," by giving the number of lines. He is no longer an up-to-date telephone man unless he can show figures giving, for at least one day of every month, an actual count of all the calls switched at each position during each hour of the day.

The Eastern Traffic Association

The Eastern Traffic Association of Independent telephone companies, the largest, and it is believed, the oldest organization of its kind, began its work in 1902.

To quote from its constitution and by-laws, the object of the Association is "To promote and regulate interchange of telephone and telegraph service between the different Independent telephone companies, and to standardize methods of handling, reporting, checking, and making settlement of such interchanged business." How well the Association has succeeded in this is apparent from a review of the work for the past six years.

The original membership in the Association represented six companies, all operating within a radius of one hundred miles of its headquarters at Philadelphia, Pa. During the first year, ending November 31, 1903, there were reported to, and settled through the Association 147,095 messages, representing $37,032.34 in tolls.

In 1904 the membership was more than doubled, seven companies being admitted, considerably enlarging the territory covered and increasing the business to 235,224 messages, and $61,158.24 in tolls.

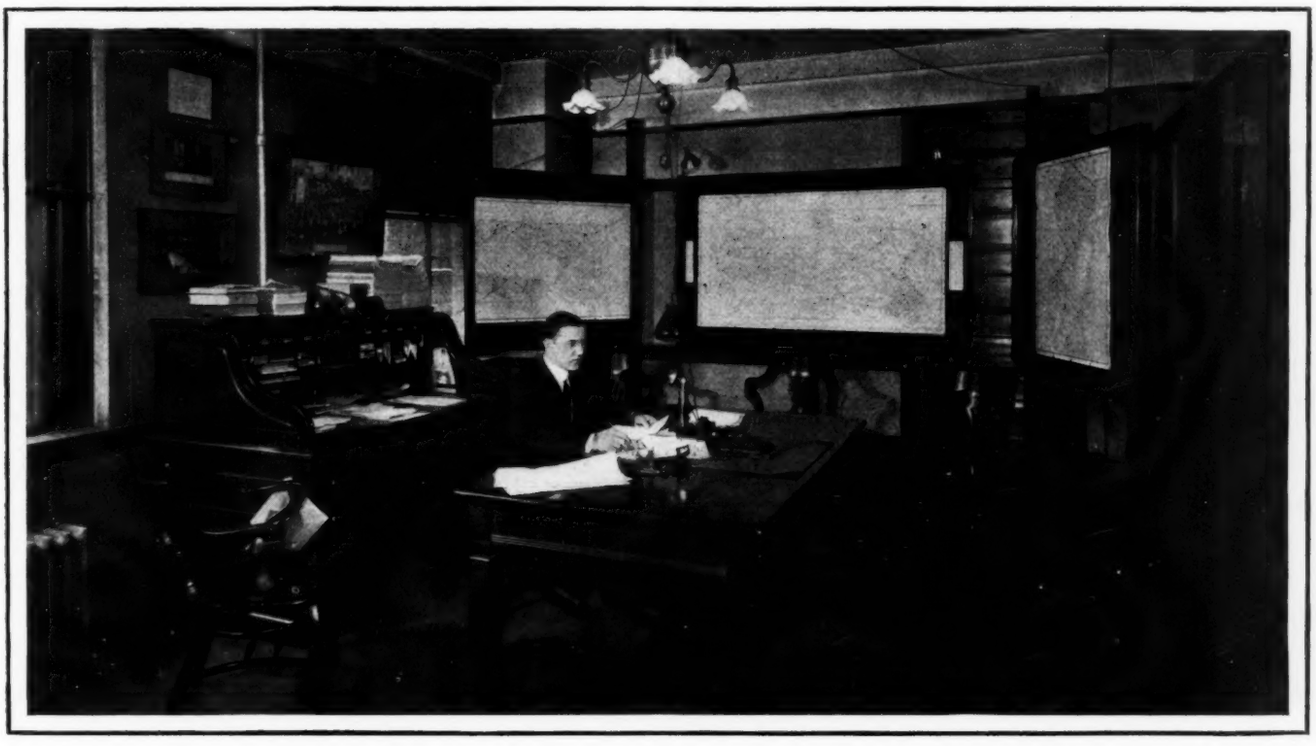
In 1905 the membership was again more than doubled, fifteen new companies being admitted, the territory enlarged by 75 per cent, and the business jumping to 456,132 messages and $130,145.17 tolls. This was the largest increase in any one year, and was due to the establishing of connections between the companies in the eastern and western parts of Pennsylvania.

The year 1906 saw an increase of eight in membership, the number of messages being 689,667 and the tolls $177,-993.85.

Nine new companies availed themselves of the advantages of membership during 1907. In this year the number of messages cleared reached 742,750 and the tolls amounted to $191,274.98.

During 1908 the increase in new members was twelve. The number of messages reported was 916,331 representing $229,857.04 in tolls.

As the records now stand fifty seven companies are members, and during the six years ending November 30, 1908, there were reported to and settled through the Association 3,187,199 messages, representing $827,461.62 in tolls. These fifty-seven companies represent an invested capital of $45,-515,398. They have in operation 451 exchanges, 4,650 toll stations and sub-exchanges, 193,880 telephones, and 48,850 miles of circuits. The territory covered represents an area of 65,360 square miles, comprising the entire state of Pennsylvania, southern New Jersey, northern Delaware, Maryland, Virginia and West Virginia, one company in New York and three in Ohio.



Private Office of Secretary Bradley, Eastern Traffic Association, Philadelphia, Pa.

In 1905 the Association adopted an interchangeable coupon, good over the lines of all members, and up to the close of 1908 books to the value of $122,432 had been issued.

The principal work of the Association is that of making settlements between its members for interchanged business. In this work all unnecessary labor and red tape are cut out. The simplest forms which can be devised are used, and every effort is bent upon making quick, accurate settlements.

At the present time the reports are averaging about $20,000 for between seventy-five and eighty thousand messages, monthly. These reports are received at the Association offices on or before the tenth of the month, for the preceding month's business. They are checked and prorated, and a settlement and check-error report is returned to the company by the fifth of the following month. In other words, the checking of March business will be completed, and settlements sent out, on or before May 5th.

The Association publishes a tariff and route book, showing all points at which exchanges or toll stations are operater by its members and their connecting companies. The

last issue of this book contained over six thousand towns which could be reached over Independent lines, and the next issue, now being prepared, will show about one thousand more.

Tariff and route books, coupon books, duplicate toll tickets, and all blank forms for reporting, are furnished by the Association at cost price to its members. This is a great saving in expense, as the Association is enabled to buy in large quantities at a very low rate.

The adoption of a standard form of duplicate toll ticket and toll report blank has done much to facilitate the work of the Association in making prompt settlements; while the standard operating rules adopted have been a great help in enabling the companies to give more prompt and efficient toll service.

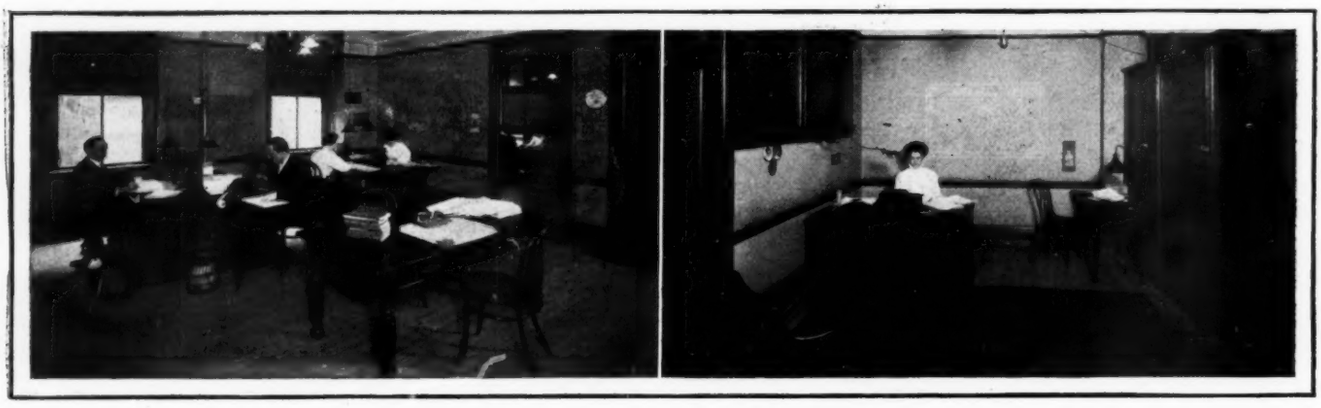
Since the organization of the Eastern Association, several other associations and clearing houses have been organized, and all are doing much good.

The Eastern Association has always been, and always will be ready and willing to aid any and all in the work of standardizing toll accounting. It courts inquiry and criticism into its methods, and of its forms. It is willing to give advice when possible, and still more willing to accept it, for it is looking for the best to be had in its chosen field, the work of making interchangeable toll settlements.

The headquarters of the Association are located at 135 So. Second St., Philadelphia, Pa.

The following officers were elected at the last annual meeting: Mr. C. E. Wilson, president; Mr. Chas. West, vice-president; Mr. I. D. Gindhart, Jr., treasurer; Mr. H. E. Bradley, secretary.

Mr. Wilson and Mr. Bradley have held their respective offices since the organization of the Association.



The General Office and the Stenographers' Office of the Eastern Traffic Association.

Maintenance Economies.*

By G. E. Bickley.

Economy, as here applied, does not mean parsimony. It does not mean the using of old, inefficient apparatus for as long a time as constant effort will hold it together; neither does economy mean the doing of things hurriedly nor incompletely.

On this subject Mr. H. A. Rhodes, a well known engineer, writes: "True economy consists in securing the objects for which we strive with the least possible expenditure of time, energy and money. It never means the imperfect attaining of these objects by reason of failure to employ enough of any one of these elements." As an instance bearing on this definition, we have known lines of four to ten wires to be built very hurriedly, in the interest of a false notion of economy, leaving the trees along the right of way untrimmed, and the corners without guys. Following the history of one such line for a few years, we find that some of its wires were almost continually in trouble. The corners soon gave way and threw slack into the lead, which in turn was swayed by limbs of untrimmed trees, and by side winds in such a manner that crosses removed one day were back again in a few days, or, in some cases, in a few hours. In one month an actual total of forty trips with a man and rig were made over this line, which, figured at a cost of $2.00 a trip, made a monthly total of $80.00. In other words, what was expected to be an economy turned out to be an absolutely useless, worthless revenue-killing cost. There was not only the high maintenance expense, but a total of several hundred dollars revenue made uncollectible on account of the antagonism on the part of the patrons occasioned by the loss of service and annoyance through line troubles. At this point an expenditure of approximately $60.00 was made by the company in the placing of guys at each corner, trimming of trees, and pulling of the slack along that line, and during the next two months only one trip was made on account of the breaking of a wire, which had become kinked in the pulling of the slack, and at the end of that time the patrons were not only all in good humor but all revenue due was easily collectible. This same company is at present introducing a combination line record and ledger which, in connection with a properly numbered mile chart of its lines will enter each case of rural and long distance trouble, including tree trimming and reconstruction costs under separate headings. This system will make possible a closer and accurate supervision of maintenance troubles and costs on any given mile or combination of miles.

Any reasonable expenditure made in order to conserve the earning power of a plant should be considered economical in proportion to the amount actually spent and the amount of earnings actually conserved. Frequently false economy is practiced in the very vitals of a telephone system. For instance, the battery, the transmitter and the receiver can almost be considered as the heart and vital parts of a telephone plant. If they are "dead" or seriously impaired, the service can in no other manner be made standard, and it has more than once happened that a company has lost patrons forever on account of the lack of an efficient transmitter, receiver, cord, or battery, placed at the proper time; thereby losing the earning power of a subscriber's unit, valued at perhaps $75 to $100, for the lack of a two per cent expenditure in the way of a renewal at the opportune time.

The company which does not carefully segregate from

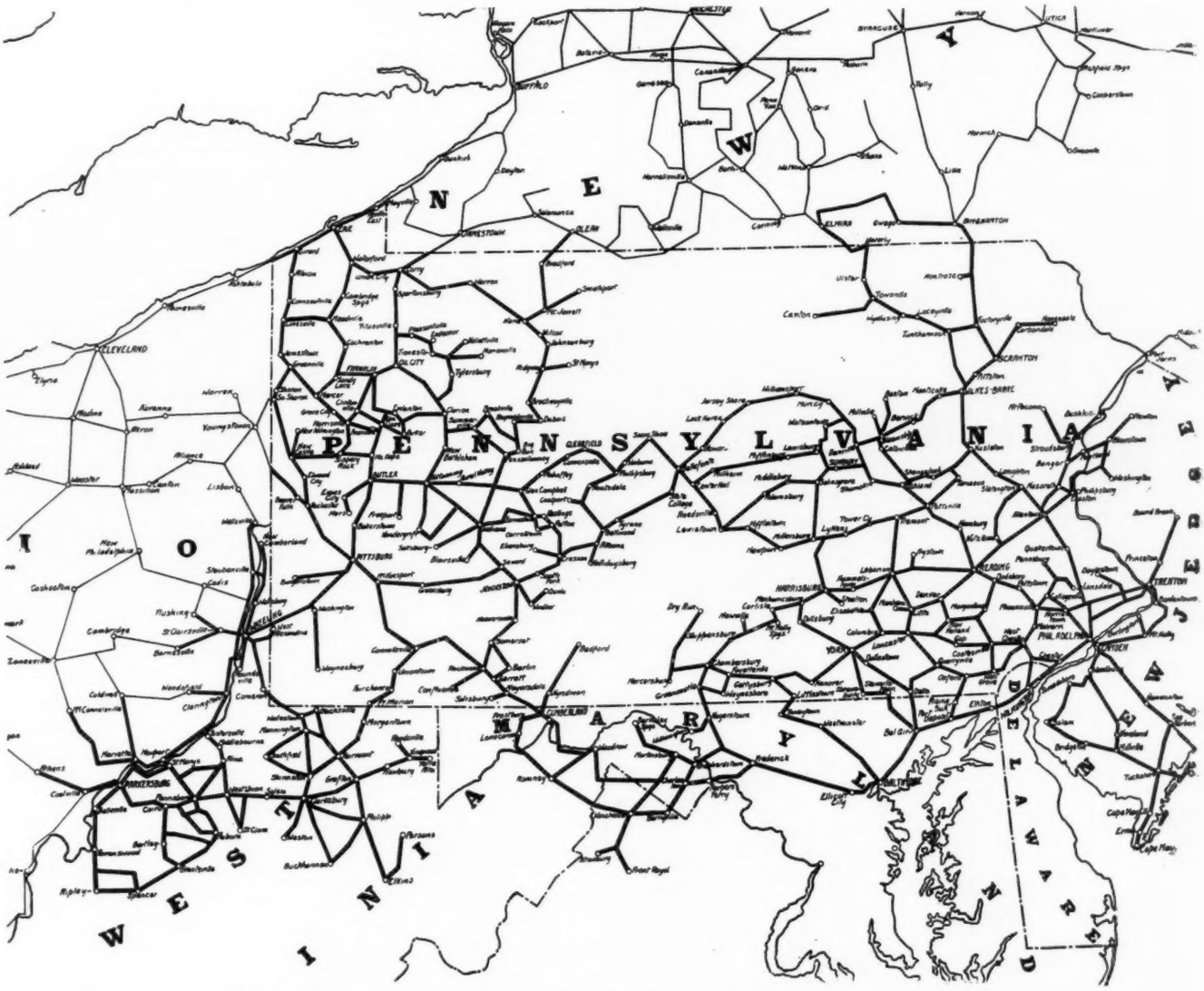
*Abstract of a paper presented at the Convention of the International Independent Telephone Association, Dec. 1, 1908.

its total maintenance cost that portion of it which is caused by the moving and installation of subscriber's units, and the taking out and replacing of "disconnects," has a great surprise in store when he visits a place where such a plan has been put in operation. This heavy portion of the maintenance cost can be wonderfully decreased by the use of a proper system of delayed changes and removals, transferring such instruments to a contract department account, tagging them with information to the effect that "This telephone is Number ——. It is in working order and you may use it at your convenience at no expense to yourself. A representative of this company will call upon you soon to discuss telephone matters of mutual interest."

etc., enumerating the different items which may become causes of trouble. These notes are written and placed when the facts are learned at maintenance headquarters.

By this device whenever trips for actual trouble are necessary over a given line, the party making it will, by referring to the map, prepare himself with all the necessary articles needed to put that particular branch in good order, care being taken that plenty of extra insulators, pins, brackets, etc., are taken along to provide for additional weak places discovered on the actual inspection trip.

In rural lines an economical plan in maintaining instruments, and making battery renewals, is to have a properly equipped "rig" make an inspection trip over the whole



Map of Territory Covered by the Eastern Traffic Association. The Heavy Lines Represent Long Distance Lines Operated by Members; the Light Lines, Wires of Connecting Companies.

By the use of a proper follow-up scheme this plan makes for one of the greatest maintenance economies the writer has ever seen devised.

A profitable economy in maintaining lines can be practiced in the manner here indicated, upon a map of any given district of a telephone system placed in the maintenance headquarters. Red tags may be placed at points representing places along the line from which information has come concerning conditions which may reasonably be expected to cause future trouble. At one point will be a tag specifying "new guy wanted"; at another place "new cross arm needed"; at another place "trees to be trimmed", rural system at stated intervals, starting out fully equipped with batteries, cords and extra parts sufficient to remedy every defect discovered, and leave the line and instruments in first-class condition. All instruments and batteries should be inspected on such a trip, and wherever a battery has given up fifty per cent of its usefulness it should be discarded and a new one placed. Such trips, if made at intervals based on the average life of the batteries in use, will occasion small waste in the way of discarded batteries. The value of the few which had some little life left in them would amount to only a small percentage of the actual time and expense necessary to change them a few months later.

History of the Automatic Telephone*

By Arthur Bessey Smith

Assistant Professor in Telephone Engineering, Purdue University.

The trunk release which was tried out at Los Angeles was so successful that it was improved. As is usual, the improvement consisted in a simplification of the release circuit cutting down the number of circuits which were linked together from the first selector to the connector. The first installation of this improvement was at Battle Creek, Mich., in 1904. It was a 10,000 system and had first

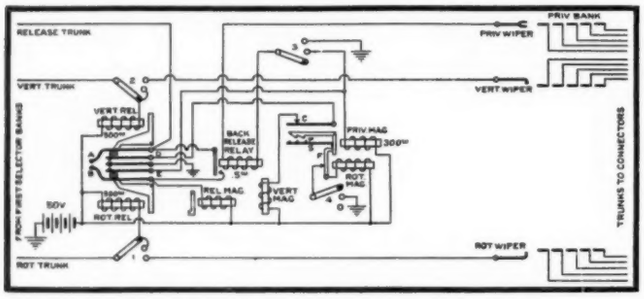


Fig. 101. Battle Creek Second Selector, with Improved Trunk Release.

selectors, second selectors, and connectors. The first selector was identical with that at Los Angeles, except that the back release relay (in the private wiper) was made 0.5 ohm instead of 8 ohms. This reduction was made to give a greater margin of safety, since the back release relay must not pull up when in series with the private magnet testing for a non-busy trunk.

The second selector is shown in Fig. 101. The rotary relay as usual controls the private magnet. The vertical relay contact, *D*, controls the vertical magnet through contact *C* on the private magnet. The feeler for a non-busy trunk is composed of the private wiper, back release relay, and the private magnet, connected to negative battery; but the half-ohm back release relay will not act through the private magnet on account of the resistance of the latter.

The release trunk from the first selector bank (private) goes through the special release springs, *A B*, on the vertical and rotary relays, to the release magnet and negative battery. The adjustment of these springs is such that if either relay be energized alone the contact will not quite be made. But if both vertical and rotary relays be pulled up at once, *A* and *B* will meet, closing the gap in the release line. This is the means used for releasing from uncompleted connection. If for any reason the second selector fails to complete its cycle of operations, or after pulling the first digit the subscriber decides not to complete the call, he may get away by merely hanging up his receiver. This grounds the vertical and rotary lines closing *A-B*. Negative battery will then flow through momentarily. The vertical and rotary relays will pull up, the release magnet, contacts *A-B*, release trunk, private wiper of first selector, its back release relay, and lever 3 of the side-switch, to ground. The release magnet of the second selector and the back release relay of the first selector are thus energized, the former releasing the second selector, the latter operating the release magnet of the first selector, which performs a similar duty in that switch.

The back release relay in the second selector has its contact wired in parallel with the contact *A-B* in the release trunk. This allows it to act on the release magnet and release trunk at one operation and is a marked advance in simplicity over the plan followed at Los Angeles.

The connector wiring is shown in Fig. 102. The rotary relay controls the private magnet. The vertical relay operates the vertical magnet, rotary magnet, and ringing relay, depending on the position of side-switch 4. Its contact wire, *M*, is looped through a contact, *C*, on the private magnet to avoid moving any of the three above-named magnets while releasing. The busy test on the called line is made by means of the release magnet. When the called has been selected, the last rotary impulse pulls up the rotary relay and the private magnet. Side-switch 3 is resting on the middle contact so that when the private mag-

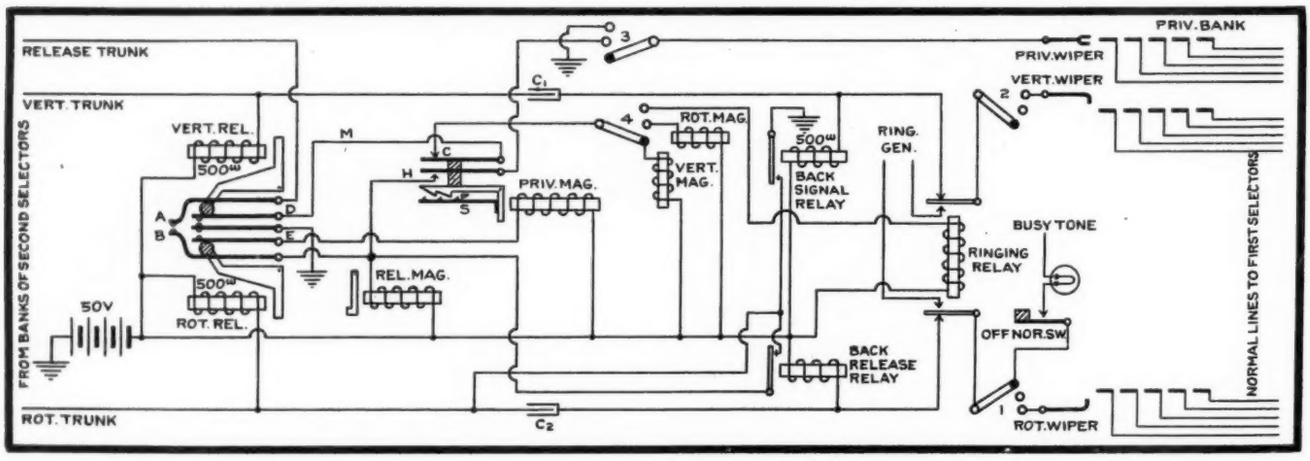


Fig. 102. Connector with Improved Trunk Release, Battle Creek.

net is pulled up negative battery is connected through the release magnet to the private wiper. If the latter is resting on ground, due to a busy condition, the release magnet will pull up, instantly relasing the connector.

Not knowing that this has happened, the subscriber will press the ringing button, grounding the vertical line. As the side-switch and wipers are now again in their normal

*Continued from issue of April 3, 1909.

condition due to the release, this act of attempting to ring will step the wiper shaft up one or more notches. This closes the off-normal switch, which connects the busy tone to the rotary line through side-switch 1. While waiting for the called station to answer, he will hear this tone, and will thus be informed that the line is engaged.

The release after conversation is made through the contact *A-B*, as described for the second selector. The called subscriber can also release himself from the connection by hanging up, if he has previously rotated his dial one number or more. In hanging up, he will energize both the back signal relay and the back release relay, thereby pulling up the release magnet. The circuit path over which this takes place is as follows: From negative battery through the release magnet, to the right to the contact of the back release relay, up to the contact of the back signal relay and thence to ground.

The back signal relay is used alone for the purpose of signaling a toll operator. When an automatic subscriber desires a toll connection, he calls the toll desk by pulling a certain number on his dial. The toll operator answers, takes the details of the call, and informs the subscriber that he will be called as soon as the line is ready. When she has put the call through and the called party in the distant city is on the line, the toll operator with her dial selects the local subscriber and rings him with a button.

When the local subscriber answers, she directs him to pull "one" on his dial. He is then ready to proceed with the conversation. This single pull is to let down the ground spring in his instrument, so that when he supervises or hangs up, he will have ground connection to work with. At any time during the toll conversation he may signal the toll operator by pressing his ringing button. Fig. 103 shows a skeleton of the whole connection from the repeating coil in the toll cord at the left, through first selector, second selector and connector to the called station at the right. It will be noticed that from the repeating coil to the subscriber there are three bridges across the circuit, the supervisory relay on the toll cord, the vertical and rotary relays in the connector, to the left of the condenser, and the back signal release relays to the right.

When the subscriber wishes to signal the toll operator, he presses his ringing button. This grounds the vertical line and pulls up the back signal relay. This relay puts a dead ground on the rotary line to the left of condenser C_2, so that current will flow through the rotary relay of the connector and half of the supervisory relay in the toll cord. The former has no effect. The latter pulls up and operates a signal in front of the operator, who gets in on the line and attends to his wants.

This diagram shows the simplicity of the improved trunk release, especially if compared with the first trunk release of Los Angeles. (Fig. 90, Telephony, Vol. 17, No. 11, Page 309.) In Fig. 103 it will be seen that the release of all the switches is started by the joint action of two relays, the vertical and rotary in the connector, all the relays in the selectors being cut off the line. When the toll operator removes her cord plug a momentary grounding of both vertical and rotary lines takes places, as has

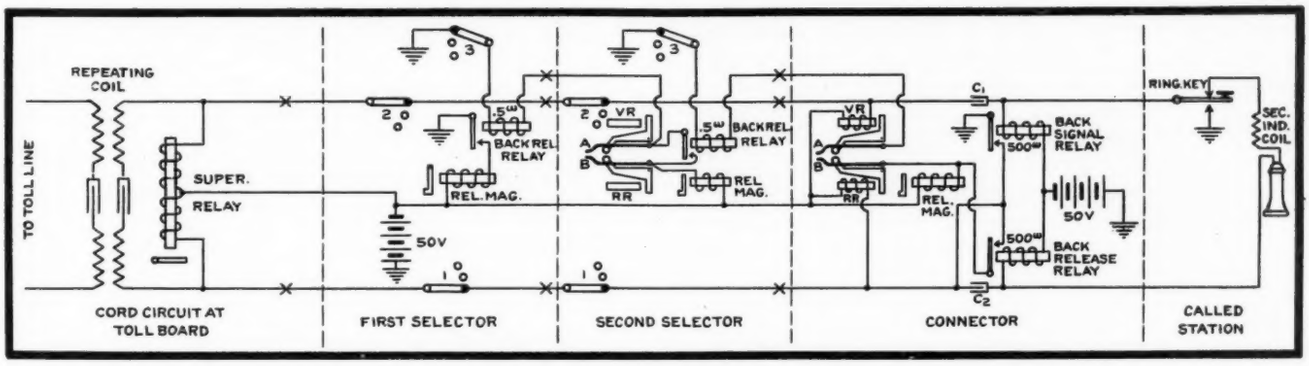


Fig. 103. Scheme of Trunk Release, Battle Creek.

been previously described. This causes the vertical and rotary relays in the connector to touch contact *A-B*. Negative battery then flows through the release magnet over the release trunk to the back release relay in the second selector and then to ground. Both pull up, the former linking itself to the detents which hold the wiper shaft. The back release relay (in the second selector) closes the gap in parallel with *A-B*, thereby allowing current to flow through the release magnet over the release trunk back to the back release relay on the first selector on ground, due to a busy conditoin, the release magnet will second selector to release, while the back release relay of the first release energizes the release magnet of that switch. When the vertical and rotary relays of the connector fall back, opening contact *A-B*, all the relays and magnets in the chain of circuits fall back and the release is complete.

There are three circuits in this chain and they are linked together by the back release relays in the simplest and most natural manner. The talking circuit is as clean as possible, consisting merely of two wires carried through good wiping contacts and a single pair of condensers, with only two bridges and no series coils. The use of the third wire (release trunk) made all this possible, and the improvement certainly justified the expense.

(To be continued.)

A Society for the Study of Wireless Communication.

The New England Wireless Society was incorporated at Boston, Mass., on February 4th, 1909, for the study and improvements of wireless communication. The officers of the society are: president, Harry E. Upton; vice president, Lawrence J. Malone; treasurer, Charles B. Robinson; clerk, Gordon S. Wallace; attorney, Benjamin F. Haines.

The regular meeting of this society is to be held on the first Friday of each month.

Force of Habit.

During the recent National Live Stock Show, one of our toll operators received a call for a nearby town, the subscriber saying we could get the desired party at "Red-2-circle-bar-2." The recorder being a strictly Western girl at once read the apparent brand as "Red-20-2," which proved to be the desired telephone. It was afterwards learned that the calling party was a cattleman from the "Circle Bar-eight" ranch.—*The Transmitter.*

The Development Study*

By S. D. Levings

In order to determine the number of lines or actual wire pairs necessary to care for the initial and ultimate development, the line figures must be deduced from the station or possibility figures. To advantageously do this for all conditions, constants have been worked out which, when applied to the particular class for which they are intended, will result in giving the required line figures. These constants are called line allowances, and are defined as the theoretical portion of a wire pair, required to furnish service to a station of the class corresponding to the constant. The line allowance constants to be used in determining the number of actual wire pairs required, are as follows:

Class	A	Service	1	line	for	each	station	or	possibility.
"	B	"	.6	"	"	"	"	"	"
"	C	"	.4	"	"	"	"	"	"
"	D	"	.1	"	"	"	"	"	"
"	R	"	.1	"	"	"	"	"	"
"	S	"	.6	"	"	"	"	"	"
"	T	"	.4	"	"	"	"	"	"

1 line or more for P.B.X in accordance with rule previously given.

In applying the line allowance constants, the resulting line figures are many times expressed in whole and fractional parts of a line, as, for example, 4.7 lines. As it is physically impossible to construct .7 of a line, the rule is made that for .5 of a line or over, a whole line shall be allowed, and for less than .5 no line shall be allowed. There is an exception to this rule, however, and such exception may be stated as the counter rule and is: Where the present or ultimate total in any block or area does not equal .5 of a line, a whole line shall be provided. To illustrate the method by which the line figures are reduced, using the line allowance constants, consider the block taken as an example under the heading of "Field Work." Tabulating the stations or possibilities, and the resulting line figures, they are expressed as follows:

Pres. Poss. or Stations.	Line allow. Constant.	Lines.	Ult. Poss. or Station.	Line Allow. Constant.	Lines.
5-A	1	5	10-A	1	10
5-B	.6	3	9-B	.6	5.4
4-C	.4	1.6	2-C	.4	.8
4-D	.1	.4	2-D	.1	.2
1-R	1	1	1-R	1	1
19		11	24		17.4

Applying the rule for the fractional parts of a line in the positive case, the results in the above example are, 11 lines for the initial, and 17 lines for the ultimate requirements. As an example of the application of the counter rule for fractional parts of a line, assume a block having but two present possibilities, and these in class D. The line allowance for class D being 1 the total requirement to care for this block initially, is but 2, but as there are only two stations in the block, a whole line should be provided in accordance with the counter rule. This whole line is allowed for the reason that, while we make the assumption determining the number of dwellings or families at 6 to require one class D line, it is not assumed that one can designate the exact dwelling which will use a telephone. In the example just taken, it may be that one of these two possibilities will require the class D service, and as a portion of a line cannot be installed, a whole line is provided to care for the emergency. The foregoing raises the question of the relation one block bears to its neighbors. It would seem logical, if the adjacent block to the one containing the two class D possibilities contained four possibilities of the same class, to allow one line for the two blocks. This plan has not been found to be economical from a service standpoint in actual practice, so the theoretical plan is sacrificed. The rule is

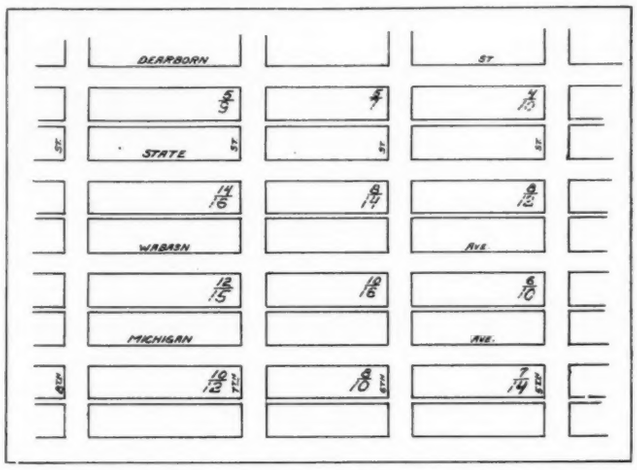


Fig. 7. Method of Entering Line Figures on Preliminary Record Map. Dotted Figures Represent Those to be Written in Red.

made, that each block or area shall be considered as a unit, in determining the line figures. A study of the line allowance table indicates that only three cases are possible where the counter rule will be applied, and these three represent the case of a block containing but one class C, four class D, or one class T possibilities. A single possibility of any other class will require more than .5 of a line, and the positive rule for fractional parts of a line can be applied.

Having reduced the possibilities, or stations, to lines, in accordance with the foregoing, the next step is to place the resultant figures on a preliminary map. This map is the one previously described under the heading of "Preliminary Work in the Office," and drawn to a scale of approximately 600 ft. to the inch. The present line figures should be entered on the map in black ink, in the proper block or area as shown by the field data, and in the upper right hand corner above a fraction line. Below the fraction line, the ultimate line figures as determined from the field data are to be entered in red pencil. The method of entering the line figures on the preliminary record map is shown in Fig. 7. When all the present and ultimate line figures are entered upon the map, their totals should be obtained and placed in the upper right hand corner of the map, in figures so as to be readily distinguishable, and in the same fractional form as was used to enter the line figures in the individual blocks. Having the total line figures for both the present and ultimate, the line ratios can then be determined. The line ratios are the relation in percentages of the present and ultimate lines respectively to the present and ultimate possibilities. The ratio for both the present and ultimate should be ascertained, and placed opposite the line figures in the upper right hand corner of the map.

Before attempting the distribution of the ultimate lines, the town should be divided into two districts, business and residence. When the extent of each has been determined, boundary lines should be indicated on the preliminary map, by broad pencil lines, the several boundaries to be drawn in different colors, so as to readily distinguish them. As the territory required for the ultimate population will be greater

*Concluded from issue of April 17, 1909.

than the territory occupied at present, the next step will be to determine the extent of the ultimate territory. Together with the finding of the ultimate boundary lines of the town, the two districts, residence and business, should be proportioned off for the ultimate. The boundaries of the ultimate districts, and the ultimate boundary of the town itself, are the results of purely theoretical reasoning, but as some location for them must be ascertained, the following assumptions are made to base this work upon. It is assumed that the ultimate business development ratio will be the same per cent of the total possibilities as has been computed for the initial period.

Therefore, having determined the initial business development ratio initially, the ultimate number of business possibilities can be obtained by applying it to the ultimate population figures. It is further assumed that present area occupied by the business possibilities will be to the ultimate area as the square root of the present area is to the square root of the ultimate area, such square roots to be expressed in terms of square miles. Having determined the present and ultimate areas by the above method, it can be checked by the ratio which the present business possibilities hold to the ultimate business possibilities. Still another way to obtain a good check on these results is to determine the density of each district, present and ultimate. This is done by dividing the present and ultimate possibilities respectively by the present and ultimate numbers of square miles in the districts. Where a large discrepancy is found upon comparing these three results, the cause should be carefully looked for and the necessary allowances made to correct the figures. The most frequent causes for variation will be found in one or the other of two conditions: First, where the present business district is large, contains few high buildings, and is sparsely occupied. In such a case, the present district will be expected to fill up before additional area is required and the ultimate district will be smaller than is normally estimated by the application of the rule given. The second condition exists in districts thickly occupied, but in which no high buildings are present. The tendency in the building line now and which will probably prevail in the future, is toward high office buildings in towns of considerable size, and this fact, coupled with the increasing value of business district property, gives good grounds for assuming that in such a district as has been cited in the second case, the older buildings will be replaced by newer and higher ones. This, as in the first case, will tend to diminish the relative area required for the business district in the ultimate period, and proper allowance should be made where such conditions are likely to present themselves in the future. Having determined and checked the ultimate business district, it should be bounded on the preliminary map in the same color as was used for the present business district boundary, except that the boundary lines should be drawn in dash, or dot and dash lines.

With the ultimate area of the business district determined in accordance with the assumptions and rules just given, the ultimate business lines should be distributed over this area. It has been shown how the number of business possibilities for the 20 year period was obtained, and the method of reducing possibilities, or stations, to lines by means of the line allowance constants. The results of this work in the present instance give the figures for the lines that are to be distributed over the ultimate business area. In this work, the ultimate line figures, as reduced from the ultimate possibilities obtained by the "house count," are made the guides by which the ultimate distribution is effected. As a rule, it will be found impossible to differentiate the line figures block by block, and on this account, a high and low average is determined from the ultimate line figures, as obtained from the "house count." A proportionate number of lines is then taken from the line figures obtained from the business development ratio and ultimate population figures, and assigned to each block. Unusual conditions, where buildings occupy entire blocks or large portions of them, and in which the development is abnormally small, or the reverse condition of a thickly settled block where the development is abnormally high, should be specially treated in distributing the ultimate lines. Such blocks will be readily distinguished by the line figures obtained from the "house count." In such cases the average figure is not applied, but the line figures obtained from the "house count" are used, unless it is clearly apparent that changes may be expected before the expiration of the period considered in the study.

The ultimate residence area should be determined and bounded on the preliminary map in the same manner as has just been described for the business district, except that the ultimate residence lines will be found by subtracting the ultimate business from the total ultimate lines. In calculating the ultimate residence area, it must be remembered that, in extending the present business area to its ultimate boundary, a part of the present residence area was included. The difference between the boundaries of the present business area and the ultimate area will be the territory used at present for residence that will ultimately become business territory. It is logical, therefore, to assume that the ultimate residence lines in this area, which will be forced out of their present location, will be found in some other location in the ultimate residence area, and should be added to the total ultimate lines to be distributed. Unlike the method followed in distributing the ultimate lines in the ultimate business area, the ultimate lines as shown by the "house count" in the blocks of the present residence area, are accepted as the ultimate figures for such present blocks. They are so accepted because of the probable absence of radical changes in development conditions in the future that are likely to appear in business blocks.

The distribution of the ultimate lines in the residence area, which at present is unoccupied and will form a part of the ultimate, is a separate problem.

In the first place, the number of lines to be distributed in such an area is obtained by subtracting the ultimate lines, as determined from the "house count," from the total ultimate residence lines as determined from the population curve plus those forced out by the expansion of the business area. Having obtained the number of lines to be distributed in the unsettled area, the individual blocks in this area are assigned a number of lines proportional to those of blocks in the present settled area, to which they correspond in type and size. It will usually be found that this unsettled area, added to form the ultimate, will not be subdivided, and it is usual to assume a subdivision similar to the subdivided territory which it adjoins. This assumed subdivision is placed on the map in red ink. In determining the character of the blocks in the unsettled portion of the ultimate area, they are compared with the blocks they immediately adjoin, and will be good, fair or poor, according to the grade of such adjoining territory. Care should be taken, in this portion of the work, to see that the ultimate distribution tapers off to the ultimate boundary. A study of the development in the territory occupied at present will show that as the present boundaries are approached, the development gradually tapers off until there is practically nothing left. This condition will undoubtedly exist at the time the ultimate area is occupied, and the ultimate taper can be best found by measuring the densities in the present area at several points near to the present boundaries, and this taper proportioned directly.

in distributing the ultimate lines in the ultimate territory.

In distributing the ultimate lines, both in the business and residence area, in the manner just described, it will be found that several attempts will have to be made before a satisfactory ultimate distribution can be reached. The various blocks should be totaled up in terms of present and ultimate lines after each distribution, and this total compared with the base line figures for the various portions of the territory, as obtained from the "house count" and population curve previously described. While it is not necessary that these results should check out to a line, a degree of accuracy to within at least one half of one per cent is desired. If, upon comparison, it is found that the map figures total up greater or less than the base figures, the individual blocks should be carefully studied and the deficit or excess obtained by subtracting or adding to such blocks as it is thought can stand a decrease or increase, as the case may be. In the work of distributing the ultimate lines, just described, it has been assumed that the general character of the town will remain unchanged throughout the life of the development study. Where it can be ascertained that changes are going to present themselves before the expiration of the study, these changes should be noted, and the proper allowances made in distributing the ultimate lines. Very frequently, in towns having a rapid growth, districts which will eventually be used for wholesale business, or for warehouse and other similar purposes, will be indicated by the development study. In such sections, the development is limited, and should be carefully treated and cared for in distributing the ultimate lines.

When the final distribution of both present and ultimate lines, and the various boundary lines of the districts have been determined and indicated on the preliminary record map, these data are ready to be transferred to the final record map. This final record map should be a duplicate of the preliminary map, and should be either printed on linen, or on paper pasted to canvas. This is done to obtain durability, as the final record map will be used for a considerable time, and handled much. The data on the final record map should be entered in ink of the various colors required, and should be an exact copy of the figures on the preliminary map. In addition to the data thus copied, several important items should be noted on the final record map in a conspicuous place, and in large sized letters and figures, so as to be readily distinguishable when the map is hung in a normal position on a wall. The figures will be constantly referred to during the designing of the plant, and, in fact, during the life of the study, as they will serve as guides for making future extensions to the initial plant. These principal items to be conspicuously noted on the final record map are as follows:

1. Classification of the town.
2. Per cent of initial development.
3. Total initial line figures.
4. Total line figures at the end of the 5 year period.
5. Ultimate line figures.
6. Per cent of ultimate development.
7. Initial number of business lines.
8. Per cent of initial business development to total development.
9. Business lines at end of 5 year period.
10. Per cent of business development at end of 5 years.
11. Ultimate number of business lines.
12. Ultimate business development.
13. Initial residence lines.
14. Residence lines at end of 5 year period.
15. Ultimate residence lines.
16. Present number of central offices to be constructed.
17. Number of central offices at end of 5 year period.
18. Ultimate number of central offices required.

To derive the above required base figures, the rules previously given will serve to determine all but Nos. 4, 9, 10, 14, 16, 17 and 18. The determination of these items can be effected by applying the rules following: No. 4, to determine the total lines at the end of the 5 year period, apply the proper development ratio, as shown by the development ratio curve, to the population figures at that period, reduced to lines by the line ratio. No. 9, apply the initial business development ratio to the 5 year population figures. No. 10 is the per cent used to determine No. 9. No. 14, apply the initial residence ratio to the 5 year population figures. Nos. 16, 17 and 18 may be determined, for this work, chosen as an example, by dividing the number of lines for the present, 5 year and ultimate periods, by 10,000.

As a rule, a detailed report should be made on the results of the development study, giving in detail all the peculiarities of the town, physical and otherwise, and in addition to this a detailed estimate of the future growth, and the assumptions made to arrive at the growth predicted. During the making of the development study many expressions will undoubtedly be made by the citizens, which will indicate their attitude toward the new company. All such information should be included in the report, and all unfavorable comment should be given especial attention, as it will be of great value in influencing the policy of the company. When the report is complete, and attached to the final record map, containing all of the data just described, the development study will be complete, and the next step to be considered is the fixing of the number and locations of the central offices to be built, initially, at the 5 year period, and ultimately.

Argument of the New York Independent Companies Against Public Service Commission Control.

The Independent telephone companies of New York State are opposed to regulation by the Public Service Commission because of the prejudice of that body against competition in public utilities. Following is the resolution setting forth the grounds for their objection to being controlled by the Commission, as adopted by the Conference Committee of New York State Independent Telephone interests at Syracuse, February 20th, 1909:

Whereas, it has been the asserted policy of the Public Service Commission to eliminate, destroy and harass competition in the lines of business now under its control, and we believe such a policy would be disastrous beyond all measure to this business.

Resolved, therefore, That we do earnestly protest against any legislation tending to eliminate, harass or destroy competition, but would gladly welcome any legislation that would increase the prospects for and maintain clean competition, and further welcome such legislation as would govern the issue of stocks and bonds, for we do individually and collectively believe that anything tending to destroy competition in any business means to mark time in that industry, and that no legislation can regulate, supervise or control any industry compared to competition.

An interesting argument presented to the legislature, contains the following which has been forwarded to TELEPHONY by Secretary R. M. Eaton, of the Conference Committee:

"In reaching an intelligent understanding of the necessity for State regulation of the telephone business, by the Public Service Commission, it is well to consider the position of the telephone business, as it exists to-day, and the conditions confronting its future; also to understand, somewhat, the past, the growth to the present time ,and the position of the Bell and Independent companies—so-called—before the public.

"Competition has existed in the telephone business since

1895. Prior to that time the Bell company, under an absolute monopoly for a period of twenty years, had installed less than 400,000 telephones in the United States.

"There was little done by the Independents, however, until 1898, since which time they have installed close to 4,000,000 telephones, and the Bell company, under the force and necessity of competition, has installed in the neighborhood of 3,500,000 telephones (the Census Bureau gives it 3,100,000 at the close of 1907).

"The Independent telephone movement was forced into a remarkable growth—beyond that of any other public utility ever organized—because the public had found itself in great need of telephone service, which could not be secured under the methods of the monopoly, and, before anyone had any conception of the real extent of this demand for telephone service, the Independent telephone companies were overwhelmed with demands for service, and in the short period of eight or ten years have actually installed ten times as many telephones as the Bell company installed in its twenty years of monopoly, and more telephones than the Bell company, with its vast organization, has been able to install in the entire thirty years of its existence.

"There is no use arguing that the telephone is a 'natural' monopoly—that competition in this utility is an economic waste, etc.—for the fact remains that no such tremendous development as the Independent telephone, with its 4,000,000 of satisfied subscribers and $350,000,000 of cash investment, could have been brought together in this enlightened commercial and financial age had there been no great necessity for it on the part of the public.

"Beyond all of this is the statement made by unprejudiced interests, (no less a one than the City of New York), who have made a careful investigation of the conditions surrounding competition in the telephone business, that less than 15 per cent of the telephone users of this State employ the service of two companies. There is, therefore, practically no competition in telephone service, as competition goes in other lines of trade, nor is there likely to be, as the demand for this service is beyond the ability of any one organization to supply, and, notwithstanding the great growth of this business, less than 20 per cent of the present needs have yet been taken care of.

"Eight or ten years ago the farmer telephone, in this State, was unknown; to-day the Independent telephone companies have not less than 50,000 farmer telephones working and at a cost of fully $3,000,000; and, notwithstanding this tremendous development, there is more actual demand for such service to-day than ever before. Farm lands have increased in value because of telephone service, and a more contented condition exists in rural communities from the use of it.

"The income from a service of this kind is not as remunerative as it is in more thickly settled districts, and the keenest competition is necessary to induce telephone companies to extend their lines to take in this class of people.

"The Public Service Commission is on record as being opposed to competition in public utilities. They claim they can so regulate the class of service, and extent of it and cost to the public, that competition will be unnecessary.

"This statement may be true in utilities which have a definite and settled position before the public, such as street railroads, steam railroads, electric light, gas, water, etc., etc., but in telephones, where there is great public need for development, no restrictions should be placed on an active competition, which is so necessary in providing this State with its utmost requirements in this class of service.

"Rural telephone companies, either through mutual organizations or stock companies, are being rapidly formed to develop their particular communities, and, through the very nature of their organization and method of operation, they are able to construct cheaper and to maintain, operate and sell their service cheaper than older and larger telephone companies, with which they compete.

"These companies have a marvelous growth. They provide a most important service to the farmer, making it possible for him to communicate with his market city, and add a convenience to farm life far in advance of 'rural free delivery' or anything else which is now being provided for the farmer's benefit.

"If the telephones were placed under the Public Service Commission, and that commission continued in its well-defined policy of refusing to allow competition in public utilities, great inconvenience and disaster would be brought to the farmers of this State through such regulations.

"Nor should any commission have power to regulate the rate for telephone service, by adopting any uniform schedule of rates and charges, because the service charge is controlled by the class of service given and extent of it, and the method of maintenance, and is so varying as to make a commission's effort at a uniform regulation of charge for service absolutely impossible.

"In municipalities, large or small, rates of charges and methods of construction for Independent telephone service are universally specified through municipal franchises, and to such companies there is no necessity of further regulation by a Public Service Commission.

"As the fullest possible value of telephone service lies in the extent of it, the commission should not be given power to prevent the consolidation of Independent companies, but, as a comprehensive system is necessary to be established in preventing the fullest benefits of competition, the commission should be instructed to prevent the consolidation of Independent and Bell companies.

"Our conclusions, therefore, are that the best interests of the public can be served, for the time being, by allowing the present keen competition in this line of work to continue unrestricted by Public Service Commission control, believing that such competition will better provide the public with the extension of service so much needed—give it lower rates and a more efficient service than could be enforced by Public Service Commission control and not until every farm district in this State and every municipality is developed to its full necessities should any restrictions be placed on this service, such as the present Public Service Commission is on record as advocating.

"New York State has been one of the last to take up this development, but not because of lack of demand of service, which will be shown by the following figures:

City	No. of telephones, 24 years of monopoly.	No. of telephones, 8 years of competition.	
		Bell.	Independent.
Buffalo	6,000	20,000	17,000
Rochester	2,000	10,000	11,000
Hornell	350	600	1,600
Salamanca	125	200	700
Geneva	300	600	1,500
Niagara Falls	275	1,600	1,900
Ithaca	300	1,000	2,100
Penn Yan	125	250	1,150
Jamestown	600	1,400	3,300

Over the Rural Telephone.

"Good morning, Bill; this has been a pretty hard winter."

"Yes, this is an equalizer."

"What do you mean?"

"I mean that if the winter continues and the cattle keep dying off in Routt County, in the spring the big cattle dealer and small one will be equal, for they will start over again with nothing."—*The Transmitter.*

District Meetings: Their Influence on Progress*

By W. R. Barkdull

The influence of district meetings can be traced in the history of our progress from the early and chaotic period of the business to its present state of magnitude and orderly prosperity. Many of the men present at this convention will remember with what inexperience we all made our start; how telephony was only a side issue with many of us, whose idea was simply to give service between friends. Simply and cheaply built, and small in capacity as were our plants, how little we then thought our present up-to-date system, serving their thousands of patrons, would follow. But voices from the wilderness called us to give the people telephone service and the plants of today are the result. Our telephone work is no side issue now. It takes all our waking hours, and some which we should spend in rest, scheming, planning and building, to keep up with the demand for progress.

Such improvements as we have made have come about very gradually, after much earnest thought and laborious effort. Every exchange built in the early days was constructed after ideas, projects and methods peculiar to its owner. How crude, how imperfect, how lacking in things essential many of them were! Anyone with ideas of system and organization, upon making a comparison of the plants could not but deplore the condition of affairs. How could saving be made from the great waste—how profit be realized from the losses—how standardization in construction and equipment could be made to replace the patch-work seen everywhere were questions urgently demanding our consideration. Too many had the idea of putting in telephones, overlooking the quality of service to be given. They did not realize that it was service they were selling. They forgot it was good service and courteous treatment that brought them subscribers.

In our progressive evolution, the thinking telephone man began to notice those around him. He saw how other trades were widening and improving. Railway superintendents got together to improve their systems. Physicians and attorneys, ministers and pedagogues advanced the character and standard of their professions by often meeting and talking over improved methods. The bankers surely made people sit up and take notice with their perfect organization. Telephone men found the necessities for meeting as great, if they were to progress. This belief led to organization and the district meeting was the outcome. And from the district meeting we have gone on to larger gatherings.

Many of the delegates to this convention have been brought here through the interest and enthusiasm imbibed from the district and state meetings. I have in mind this moment several men, active in this great assembly, who only a few years ago were starting humbly in local organizations, having no idea of their usefulness, no realization of their power. They were first enthused in a Missouri district meeting. The district meeting is the grade school, the state convention is perhaps the high school, and here it might be said the collegiate or higher degree is attained in association work; and so, in all this, the local district meeting is the first stepping stone to representation in this high body.

We Missourians sometimes find it a hard proposition to get the proper awakening; how to get the necessary enthusiasm, the spirit of willingness, and the attitude of cooperation aroused among many of the companies. How to properly get these ideas thoroughly instilled into the hearts and minds of the rank and file is often a problem. The best and most successful method we have found is in a spirited district meeting. By personal visitation we get their attention and a promise of attendance, and often with one meeting an enthusiastic adherent to organized work is attained.

In organizing these associations, one must look into the future, must do many hours and days of planning, must continually talk and work to make the meeting a success, must have interesting and practical subjects upon the program, which should go off with snap and vim. These subjects should be such as to bring out information which will be profitable to all in attendance. Assignments should be carefully made to men, each interested in and posted upon his particular subject, and well capable of handling it. Discussions upon every topic presented should be encouraged, and the chairman should bring out the ideas of the most reticent and backward person present. A question box will often bring out many novel and timely subjects.

Here in the district meeting we teach the importance of standardization, and that it is not the most profitable to buy the cheapest quality of apparatus. Here we impress upon our associates the great truth of deterioriation, that colossal foe, often the one most entirely ignored in a telephone man's early business existence. Here, too, we show the necessity of a higher and better rate, upon which his future entirely depends. Also we do not fail to remind them of the necessity of fair treatment and satisfactory compensation for "Central," the key-stone of a successful and popular system. We prove to them the necessity, and great saving it would be to properly and accurately keep the books. This one subject has been made a hobby in our Association, and a complete set of forms have been devised and are recommended to be used by our members. We also make and supply maps of each district, showing the location of the exchange and the different toll lines, giving the different routes for toll line messages. In the district meeting we get the men together and discuss the boundary limit, holding down, perhaps, a too ambitious member, who thinks of seeking business in another man's territory. Here, too, we bring up for discussion the laws pertaining to or regulating our business, and the possibilities and dangers of future legislation. We talk over with members the simpler switching contracts, and the proper rate to charge for such connections. Their attention is directed to the advisability of a district, state or inter-state clearing house, in order to get the proper route, the correct rate and the accurate division of mileage on all toll messages. The results which would be obtained if state wire chiefs or inspectors were appointed to locate and test for stubborn and refractory troubles have been discovered. Every member is advised and urged to take and read a good telephone journal.

In these meetings will come up the ever-present and delicate question of the farmers' rural service. Where is there a better place to go to the core of this intricate subject more thoroughly than in a district meeting, where we can easily get the attendance and arouse the interest

*Paper read at the convention of the International Independent Telephone Association, December 2, 1908.

of the farmer himself? Here we rub up against the genuine article. And again, it is here, in this kind of a meeting, that we first get the attention of the inexperienced telephone man, who is perhaps narrow, selfish and only seeking his own interests. Here we teach him the *A B C* of Independent telephony, and we try to instill into him, and everyone present, that loyalty to our cause is one of the small sticks composing the big strong bundle of sticks, with which we can better stand strongly with the public, against all opposition. We try to teach our members that every time an Independent manager makes a sub-license contract with the Bell, he is adding that much more to the funds of the monopoly, which it may use to fight his own Independent company.

We show that with the joining of the many local and Independent exchanges we many times outnumber the subscribers of the Bell, and prove that the common fight of the people is on the Independent side, which further proves that "the people do rule." We teach that an owner cannot be in both camps, with one foot on the Independent and the other on the Bell side of the fence—that one must either uphold the SHIELD or the Blue Bell, not both.

Many advocate that a toll line is an absolute necessity to the success of an Independent exchange. Again we are Missourians and can "show you" that such is not the case. We can cite numerous instances where the reverse of the rule is true and where successful exchanges are today being operated without Long Distance connections. But we will admit that in all of these cases, were such connections possible, the situation would be greatly strengthened. Advocating and giving first class service, adopting up-to-date methods, stopping the leaks, patching the hole through which many of the earnings are pouring, putting in practice many of the suggestions mentioned in this paper, and being strictly loyal to the cause of Independent telephony—these rather than sub-license toll contracts with the Bell company are what make these successful exchanges.

For its influence upon the progress of organized, associated work, the district meeting is the forum where all these new ideas, unsolved problems or, perhaps, wild-cat schemes needing to have their fallacy exposed, should first come up for discussion. We know there are many problems yet unsolved, various issues still awaiting discussion, numerous imperfections needing correction, and these we feel will be presented to our meetings as they come due. To get practical schooling in associated telephony, to influence the man and teach him his fitness for the wider field of progress, there is no better place than a district meeting.

If there is a mission to perform, a lesson to teach, and a principle to instill into the heart and mind of the general telephone owner, it can be best brought out in an organized, flourishing, wide-awake, district telephone association.

Independent Telephony in Idaho.

The accomplishments of the Interstate Co-operative Telephone Company, an Independent and rural system in the state of Idaho, during the past year is a fair indication of what can be accomplished in the field of the Bell telephone company in the West.

At the beginning of the year just closed the Interstate Co-operative Telephone Company had, approximately, two hundred and fifty subscribers connected up with three exchanges, viz., Moscow, the head office of the company, Troy and Kendrick.

From the time of its organization the company was poorly managed and showed but little growth or improvement. The exchanges were permitted to run down and the class of service rendered was of an indifferent and unsatisfactory nature. At the beginning of the last year, a new manager was placed in charge. The opposition company immediately sent men into part of the territory to induce the farmers to build their own lines and switch through Bell exchanges, also offering to switch farm lines connected with the other company's exchange for a term of years, gratis. To a very great extent the Independent company reaped the fruits of their labors, as with the exception of a few lines, the lines built by the farmers connected with the Independent exchange. In addition to this, a great deal of interest was created among the farmers who did not desire to build their own lines, but who wished to have telephones installed. The Interstate Co-operative Telephone Company built approximately forty miles of farm and toll lines to connect various farm lines and to accommodate farmers desiring telephones installed in their homes. It also installed an exchange at Geary, with about seventy-five subscribers.

The company's records show an increase of nearly two hundred subscribers in the past year. Under some circumstances this would seem but a small increase, but owing to the situation of the company, it is an indication of what might be accomplished under more favorable conditions.

The Nez Perce Cooperative Telephone Company, operating lines in Nez Perce and adjoining counties, has met with excellent success in competing with the Bell company, having added several new exchanges to its system and a number of miles of lines in the past year.

Perhaps the most far reaching results of good Independent competition in this part of the country has been accomplished by the Interstate Co-operative Telephone Company, of Spokane, Wash. At Post Falls, Idaho, a town in which the Bell company had a first-class exchange, the Interstate company installed an exchange, and during the past season the Bell company gave up the fight and took out all its equipment with the exception of the poles. At Rathdrum, Idaho, the same results are expected. At Spirit Lake the Bell company was unable to obtain a franchise under which it could operate.

Telephone Aids in a Local Election.

Atlanta, Ga., made a novel use of the telephone in connection with a whirlwind campaign last fall by one of the candidates for the mayoralty. The best citizens of the town were determined to elect their candidate, and after forming numerous ward clubs they secured pledges from 7,750 voters out of a total registration of 16,000. Having secured these pledges they were determined to use every effort to get these voters to the polls on election day, and to this end they rented a down-town store, and made a contract with both the Bell Telephone Company and the Independent Telephone Company to furnish them forty-five direct line telephones and forty-five girls to handle them. These direct lines were carried to special operators' positions in the various exchanges throughout the city, the number of lines to each depending upon the number of voters to be reached through that exchange.

The list of pledged voters was taken, and by searching the telephone directories it was found that a large percentage of them had telephones listed in their names. Where they did not have them it was found, in the majority of cases, that they were connected with certain establishments through which they could be reached by telephone.

After these lists were completed, each telephone clerk was furnished with a list of names of persons whom she proceeded to call telling each voter that she had been requested by the Chairman of the Campaign Committee to ask if he had voted, and if not, to be sure to go to the polls before the closing hour.

This system was found to be most efficacious, and its use doubtless had a great influence upon the result of the election. The actual figures show that the candidate received 7,719 votes out of the 7,750 pledges.

The Telephone in the Courts

Conducted by A. H. McMillan

Use of Private Right of Way in New York.

Our company has been notified to remove its lines from a certain private right of way. The land over which our lines run has changed hands, and one of its former owners is dead. It is situated in an incorporated village.

We had the verbal consent of the former owners to place our wires on their property and have operated our lines there for about four years. A large company secured a franchise in said village by agreeing to carry all wires entering the village on their poles. The work of removing local wires from the poles now occupied, and placing on their poles, to be done by them, and the cost to be paid by the companies owning the wires.

We do not think it is to our advantage to have our wires placed on these poles, owing to certain rights which we lose, and to having to pay heavy charges for this work, but the owners of land over which our wires run ask us to do this and claim they can force us to remove our wires in any case. Can they do this?

If not, can they collect damages for inconvenience which they claim are caused by our wires as long as we had consent of former owners to place our wires on their property? Also, we have wires running through the streets of said village and while we have no franchise from the village, we had the consent of property owners to string our wires. Can the village authorities or property owners force us to remove our wires, or can they collect damages?

In any private lands, the owner has the absolute right. When permission is given orally by the owner to erect a telephone line on his land, it amounts to a verbal "license." After such a license has been acted upon, it is irrevocable. Wilson vs. Chalfant, 150 O., 248; 45 Am. Dec., 574. We therefore think that the land owners could not cause you to remove your wires. It therefore follows that they could not collect damages for inconvenience caused by your line being on their property. We do not believe that the village can compel you to place your wires on the other company's poles, or that, property owners having given you permission to use the streets, the village can now cause you to remove your wires or collect damages. The statutes of your state (Laws of 1890, p. 1151, Sec. 102) provide that companies may build over the public roads, etc., of the state, subject to the rights of owners to full compensation. The owners, having consented, have waived their right of compensation.

Preventing Use of Telephone by Competitor.

We are the owners of an Independent telephone exchange. The Cumberland and two other companies run toll lines into a toll station or storehouse, and then use our telephone within limits that subscribers are given free use, to tell people they are wanted at their telephone station. We rent them our telephone for their business only. We would like an opinion or citation as a whether or not the said toll lines can call up patrons for their line through my subscriber without me being able to charge them a reasonable fee for using our lines. Our subscriber charges these people 10 cents messenger fee, and uses our lines to summon them instead of a messenger. I want this 10 cents or to make them quit using our lines. Please advise us.

A telephone company has the privilege of confining the use of its telephonic facilities to personal messages for individuals including those of telegraph companies and others who furnish messages, for hire. Delaware Telephone Company vs. State, 50 Fed., 677. McMillan on Telephone Law, Sec. 196. Under this principle, you would have a right to refuse to accept your competing company as a subscriber. You would have to make this rule apply to all competing companies in order to have it hold good.

House Moving Again.

We are having trouble with a house mover, he claiming the right to remove or destroy and damage any telephone wire interfering with his work on the streets.

We would like to have any law or laws pertaining to same.

If there is no way for the building to be moved, other than across the street occupied by the telephone line, and the parties desiring to move it have permission from the proper authorities to use the street for that purpose, telephone companies are obliged to move their wires and cables to let the building pass. If, however, the party moving the building can use a side street or alley just as well, he can be required to use it. A bond to pay all expenses and hold the company harmless from injury may be required.

Oregon Tax Case Goes to United States Supreme Court.

The Pacific Telephone & Telegraph Company, at Salem, Ore., has served notice on Attorney-General Crawford that it will begin proceedings for an appeal to the United States Supreme Court in the case brought by the state of Oregon to collect money under the gross earnings tax law.

The company will base its appeal on the ground that the initiative and referendum and the primary system, under which the gross earnings tax law was enacted, are in contravention of section 4, article 4, of the Constitution of the United States, which guarantee a republican form of government; alleging further, that the entire primary system, including the initiative and referendum, are unrepublican in form and therefore unconstitutional and void.

The suit against the Pacific Telephone & Telegraph Company is to enforce payment of the tax due the state under the gross earnings act for the period beginning June 25, 1906, when the law went into effect, and ending December 31, 1906. There is now no doubt that the gross earnings act was repealed by implication by the law of 1909, and probably by that of 1907. The question arises as to whether or not collection can be made under a statute that is no longer in force.

Telephone Line Not an Additional Burden in Georgia.

The construction of a telephone line upon a public county road or highway in the state of Georgia, with the approval of the county authorities in charge of such road or highway, which line is used in the transmission of messages between various points, is not an additional burden upon such public road, and does not exceed the uses to which the easement in the public can be put by the approval of such county authorities, and an abutting land owner has not the legal right to prevent such use. So the United States Court for the Northern District of Georgia held in a recent case brought by a telephone company to prevent a land owner from interfering with the construction of its long distance line.

Southern Bell Telephone & Telegraph Company v. Nalley, 165 Fed. 263.

Pole a Nuisance to Building, Although First Located.

The Indiana Appellate Court, in the case of Merchants' Mutual Telephone Company vs. Hirsbaum held that the setting of a large telephone pole directly in front of the door of a saloon constituted a nuisance even though the pole was in position before the saloon building was constructed. This was the case where the company had no rights in the street. Wonderful is some of the wisdom of the Indiana courts.

Telephone Is Property of Renter.

Sent by the local management of the Pacific Telephone & Telegraph Company to remove the telephone from the home of Albert Soderbom, in South Bellingham, Wash., C. Peter Hoskins, a lineman, found no one at home and entering the premises removed the telephone without the knowledge or

consent of Soderbom. For this he was arrested and arraigned before Judge Beach on a charge of trespass and was fined $15 and costs.

The telephone company said that Soderbom had not paid his December telephone rent and therefore the corporation believed it had a right to take its property whether the person who had it for the time being was at home or not. Hoskins stated that it was the practice of the company to take out a telephone by any means obtainable if it was desired to remove an instrument and the renter was not on the spot at the time.

Soderbom testified that he had not paid his rent because he was away from home, that no notice for the payment of rent had been served upon him, and that he had no intention of yielding up the telephone.

According to the story told, Hoskins went to the house early last week. Finding no one within, he asked a neighbor a key. The neighbor's keys would not fit Soderbom's locks so that a screen was removed from a window, and entrance gained through it. In a day or two Soderbom returned home and observing that his telephone had been taken out had Hoskins arrested.

$15,000 Too Much for Lost Arm.

At Salt Lake City, Utah, George Harold Speight must either consent to reduce his judgment of $15,000 for the loss of his left arm against the Rocky Mountain Bell Telephone Company to $10,000, or else stand a new trial, according to an order entered in Judge Lewis' division of the district court. Judge Lewis says that the evidence does not support the amount of the judgment.

Speight came near being electrocuted while repairing the company's wires at Main and Center streets, January 26, 1907. Although he had never done such work before and had not been warned of the danger, he was ordered to climb a pole and test the wires through the testing box. A current of 4,400 volts passed through his body, permanently injuring his left leg and burning his left arm to such an extent that it had to be amputated half-way between the elbow and hand.

Telephone News

INDEPENDENT TELEPHONE CONVENTIONS

Indiana, Indianapolis, May 12, 13; Missouri, Kansas City, May 19, 20; West Virginia, Parkersburg, May 27, 28; Mississippi, Jackson, June 11, 12; Arkansas, Little Rock, May 10, 11.

Convention of the Indiana Independent Telephone Association, May 12, 13, at Indianapolis.

The fourth annual convention of the Indiana Independent Telephone Association will be held in the Claypool Hotel, Indianapolis, May 12, 13, 1909. An unusually interesting and varied program is being prepared for the meeting. One of the enjoyable features will be a 5 o'clock dinner in the large dining room. This is a departure from previous banquets and theater parties held for the entertainment of members and guests. The dinner will be on the evening of the first day of the convention. Charles S. Norton, Indianapolis, is president, and M. A. Payton, secretary.

Telephone Companies Not to Go Under New York Public Service Commission.

The bill of Assemblyman Francis to place telegraph and telephone companies doing business within the state of New York under the jurisdiction of the public service commissions is in the assembly committee on electricity, gas and water. Efforts of the introducer and others to have the bill reported out have not been successful, and it is believed that the measure will meet the same fate as it did last year, when it died in the rules committee near the end of the session. Assemblyman Merritt, majority leader in the house, is quoted as saying that the proposed regulation is not necessary.

Large Extenions to be Made in Los Angeles.

The Home Telephone & Telegraph Company of Los Angeles has sold to an Eastern banking firm a large amount of its securities, and will devote the proceeds immediately to the betterment and extension of its service. Much new equipment will be installed.

The company will complete its South Pasadena lines within sixty days, or less time, giving that place direct connection with Los Angeles. Its 300 pair cables have already been strung to the city limits and 50,000 ft. of additional cable has been received. With the new equipment the company will be able to serve several hundred more subscribers in South Pasadena. In addition to the above, the company is rapidly extending its lines in other directions, in order to take care of the rapid growth of the city. For several months past the subscribers' list of the company has been increasing by an average of over three hundred telephones per month.

Indianapolis Company to Extend Service.

The Indianapolis Board of Public Works has approved the plans submitted by the Indianapolis Telephone Company for extending the latter's service in the Irvington district. This is the largest extension of service undertaken by the company since it received its new, or amended, franchise.

The plans approved by the Board provide for the placing and maintaining of nearly 500 poles, which will cover a large territory in the eastern section of the city.

The work of constructing a new branch exchange building will be started soon.

United Telephone Company, Bellefontaine, Ohio, Shows Improvement in Earnings.

The steady growth which is so strong a feature of the telephone business is exemplified by figures from the statements of the United Telephone Company, of Bellefontaine, Ohio. On March 1, 1909, this company operated 4,556 telephones, of which there were 1,842 at Bellefontaine, 412 at Belle Center, 451 at De Graff, 398 at West Liberty, 339 at West Mansfield, and smaller numbers in nine other exchanges, Huntsville having only 32 telephones. The company was, on March 1, 1909, operating 425 miles of toll lines, and 12 toll stations, in addition to its plant for local service.

Receipts from operation for the preceding six months were $36,690.32. Of this amount salaries, wages, and office expense took $10,344.32; construction and maintenance $12,328.12; and general expenses, taxes and insurance, $2,367.58.

The company paid $1,500 in dividends at the rate of six per cent per annum on its preferred stock, and its fourteenth semi-annual dividend on common stock at the same rate as the preferred. The company values its plant at $61 per telephone, and the same figure for each mile of toll line. On March 1 cash on hand amounted to $3,207.68, with accounts receivable of $11,371.39 and accounts payable of $2,263.39.

The growth of the company is indicated by a comparison of these figures with the returns in the statement for the entire year, Jan. 1, 1907, to Jan. 1, 1908. In this period gross earnings from operation were $62,795.44, derived from 364 less telephones, and 30 less miles of toll line. The plant valuation was set at $65.75 per telephone, so that the company has evidently made a proper charge to offset depreciation.

Ad Valorem Tax Bill Passed by Michigan Legislature.

In spite of the efforts of the telephone companies and their friends in the House, the Fairbanks bill, as it passed the senate a few weeks ago, changing the system of taxing telephone companies in Michigan from the specific to the ad valorem basis, passed the House last Wednesday, unchanged. There is no doubt whatever of its receiving the governor's signature.

This will mean quite an added burden to the telephone companies of Michigan, variously estimated at from $100,000 to $125,000, according to the valuation put upon the various telephone properties by the tax commission. The present tax is a specific tax of three per cent on gross earnings.

What the companies will do about it is uncertain yet, and they will have a year to decide before the new law will affect them, but there is little doubt at present that the matter will reach the courts.

There are a vast number of persons in the state, outside of stockholders, who have considerable sympathy for the telephone companies, and it is believed that this will work to the companies' good when it comes to the actual assessment of the telephone properties. A state board of equalization is already freely talked of and recommended outside of telephone headquarters, with power to adjust any differences that may exist in the different counties of the state in making assessments. The telephone companies' officials, during the present agitation, have often expressed themselves as willing to pay the same taxes as others, but said they did not want to pay more, and that they would be satisfied, if a board of equalization should be created, to be taxed on the ad valorem basis.

Twenty-five Years of Accomplishment.

Twenty-five years' continuous and successful service in the telephone field gives a man a grasp of the business. A. S. Hillhouse, assistant general manager of the Cuyahoga Telephone Company, Cleveland, Ohio, will complete this period in September of this year. He started in as messenger boy and night operator at Kalamazoo, Mich., in September, 1884, and since that time has worked in every department except that of auditing.

In 1882 Mr. Hillhouse and a boy chum of his made two receivers and connected them to a grounded iron line, which they strung on trees and housetops between their homes, a distance of a block. Although "fearfully and wonderfully made," they would "transmit," much to the delight and astonishment of the youngsters. Within 24 hours, however, agents of the Bell company had visited them, and made dire threats as to what would happen if the instruments were not surrendered immediately. The trouble was adjusted by promising to disconnect and not use them again. This episode only intensified Mr. Hillhouse's desire to know more about this secret and wonderful invention, so, two years later, he secured his first position in the telephone business. After 17 years of experience with the Bell telephone companies, in several states, during which time he was assistant superintendent of construction in Ohio for the Central Union Telephone Company, he resigned to accept the position of general manager of the Stark County Telephone Company, of Canton, Ohio.

He took hold of this property before it was finished and,

Mr. A. S. Hillhouse.

after rapidly pushing it to completion, started an energetic campaign for business. During the next five years over 5,000 telephones were installed. A first class organization was built up at the start, resulting in the property being operated and maintained at a very high standard. Every dollar of rentals and tolls is collected each quarter. The 60 physicians of Canton were induced to discontinue their Bell telephones in 1901, and use the Independent exclusively. With the exception of possibly half a dozen, this condition still exists. During Mr. Hillhouse's connection with the company 3,000 subscribers' rates were increased, adding about $10,000 to the annual net earnings of the company. This was done so quietly that it aroused no trouble of any kind. The Stark County Telephone Company is operating for less than half of its gross earnings, and keeping up its property, in addition to setting aside each month a generous cash reserve for depreciation and renewals.

Mr. Hillhouse in 1906 was transferred to Cleveland, by General Manager C. Y. McVey, and made manager of exchanges for the United States Telephone Company, and in 1907 was given the additional position of assistant general manager of the Cuyahoga Telephone Company, which latter position he now holds.

The New Association of Minnesota Telephone Men of the 7th Congressional District.

The association of the Independent telephone companies of the 7th Congressional District of Minnesota, organized on March 5, as reported in TELEPHONY of March 20, under the name of the Seventh Congressional District Telephone Association of Minnesota are:

Citizens Telephone Company of Montevideo, Minn., F. E. Bentley.

Wood Lake Rural Telephone Company of Wood Lake, Minn., A. H. Lome, secretary.

Bellingham Telephone Company, Bellingham, Minn., Lucius F. Clark.

Kandayohi Telephone Company, Svea, Minn., J. O. Lundberg.

Marietta Telephone Company, Marietta, Minn., J. N. Rule.

Redwood County Rural Telephone Company, Redwood Falls, Minn., A. O. Gimmestad.

Madison Telephone Company, Madison, Minn., W. E. Leasman, manager.

Home Telephone Company, Cottonwood, Minn., E. P. Kelly, manager.

Granite Falls Telephone Company, Granite, Minn., D. A. McCarty, treasurer.

Among the resolutions passed at the meeting at which this association was organized are the following:

"Whereas, many Independent telephone companies of this District are operating at a rate too low to properly maintain the physical condition of their lines to a reasonable standard, pay operating expenses and even a low rate of return on investment and some are operating at an actual loss,

"Therefore, be it resolved, that this Association recommends that the rate for rural telephones be not less than $1.50 per month, also that this rate be uniform to stockholders and non-stockholders alike and that such conditions be imposed as will pay a reasonable yearly dividend in cash to the stockholders on its stock.

"And be it further resolved, that we recommend a depreciation charge of 8 per cent to be yearly set aside.

"And be it further recommended that subscribers be required to pay for poles, wire and construction for such construction from leads as require to the setting of more than three poles."

The Association sent to the Legislature a protest against certain legislation which would hamper development and prevent open competition.

The following are the officers of the new Association: President, E. P. Kelly, manager, Home Telephone Company, Cottonwood; first vice-president, A. O. Gimmestad, of the Redwood County Rural Telephone Company of Redwood Falls; second vice-president, F. E. Bentley, of the Citizens Telephone Company of Montevideo; treasurer, E. R. Rasmusson; secretary, Lucius Clark, Bellingham.

Successful Convention in Western Pennsylvania.

The convention of the Western Pennsylvania Independent Telephone Association was held at Rochester, Pa., April 15 and 16. There were about 100 delegates present.

The Thursday afternoon session was partly given up to the inspection of equipment and supplies, to which careful attention was given. The delegates then visited the new exchange building of the Beaver County Telephone Company, in Beaver Falls.

T. J. Shufflin, manager of the Peoples Independent Telephone Company, of Butler, and president of the Western Pennsylvania Independent Telephone Association, was introduced to the delegates by S. C. Thayer, of Rochester, general manager of the Beaver County Telephone Company, and presided over the meeting.

Mr. Shufflin in a few preliminary remarks, said:

"Beaver county was the stronghold of the Bell Telephone Company, but the gentlemen here have accomplished a great feat in building a system second to none in the country." He concluded with congratulatory remarks for the men who have made the Beaver County telephone system a success.

J. Rankin Martin, Esq., of Beaver Falls, was then introduced and made the address of welcome to the delegates.

The response to the address of welcome was made by J. Walter Barnes, of Fairmont, W. Va. Mr. Barnes said:

"Competition is important and necessary in telephone service. It guarantees a better service and gives a much lower price for the service."

Remarks were also made by Dr. J. K. Brown, of Brookville, Pa., president of the Summerville Telephone Company; O. I. Riddle, of Enon Valley, president of the Enon Valley Company: T. B. Lee, general manager of the National Telephone Company, Washington, Pa., where an automatic system similar to the local system is being installed; E. D. Schade, general manager, Johnstown Telephone Company, Johnstown, Pa.; H. L. Lamb, general manager, Union Telephone Company, California, Pa.; J. W. Knapp, secretary, Clarion Telephone Company, Clarion, Pa.; Dr. J. A. Haven, of Brookville, general manager, Summerville Telephone Company; John C. White, of New Bethlehem, Pa., secretary and general manager, West Millvale Telephone Company; S. C. Thayer, general manager,, Charles L. Blackmore, vice-president and G. E. Kimball, superintendent of equipment, of Rochester, all of the Beaver County Telephone Company; W. J. Davidson, hardware merchant, Beaver Falls, and T. J. Shufflin, president of the Western Pennsylvania Independent Telephone Association.

The subject of the connection of the fire alarm with the telephone system was brought up by C. L. Blackmore, of Rochester, and the delegates from cities and towns in which the system is in use were requested to speak on the subject.

Mr. Schade, general manager of the Johnstown Company, stated that the fire alarm system in connection with the telephone was an expensive proposition; that he had seen the system which he claimed is very simple, fully demonstrated and that it is very reliable, but that the revenue derived from the fire alarm source is not sufficient to warrant the use of the latter system in connection with the telephone system.

On Friday it was unanimously voted to extend the limit of this Association to the Independent telephone men of Eastern Ohio and West Virginia, with the request that they co-operate. It was voted that the next convention be held at Washington, Pa., on Wednesday and Thursday, July 14 and 15, 1909.

Citizens Telephone Company, of Grand Rapids, on Time with 47th Quarterly 2 Per Cent.

The directors of the Citizens' Telephone Company, of Grand Rapids, Mich., at their monthly meeting held April 10, declared the usual quarterly dividend of 2 per cent, this being the 47th consecutive cash dividend to be paid by that company.

Reports of officers showed 9,782 telephones in the Grand Rapids exchange, and the officers expect the list will pass the 10,000 mark by June 30, the end of the company's year.

Reports from Lansing, Battle Creek and the other exchanges of the company showed continued satisfactory growth in income and telephones.

As the oldest of the larger Independent companies, the Citizens company, by its history of conservatism, uniform growth and increasing prosperity, has an enviable record, and brings confusion to Bell prophets and all calamity spellbinders.

Extensions Planned by a Wyoming Company.

One of the progressive Independent telephone companies of Wyoming is the Kemmerer-Big Piney Telephone Company, of Kemmerer. , This year the company will build 80 miles northward from Rock Springs to connect with the line from Kemmerer to Lander. This line, which will cost about $7,000, has already been financed by Rock Springs' people. The company now has orders for about 100 telephones to be installed this summer. Later in the season the company will build lines from Riverton, Wyo., to Dubois. The officers of this company are: P. F. Haisch, president; Ivan S. Jones, secretary; Ira Dodge, vice-president and general manager; C. Watt Brandon, treasurer.

Practical Questions and Answers

Bells of Different Resistance on Same Line.

We have two telephone lines (grounded party lines) connected to a telephone with a 3-way cut-in station. The telephones on one of these lines have 1,600 ohm ringers, as does the switch or cut-in station. The telephones on the other line, including the "central" telephone, have 2,500 ohm ringers. "A" claims that this switch will weaken the efficiency of the ringing on the 2,500 ohm line when the telephone is switched over to the 1,600 ohm line. "B" claims that the only effect it has is that it will ring the 1,600 ohm extension bell louder when the line is cut out from the telephone, and, when the "central" telephone is on the line, that the switch has no effect. "A" also claims that by placing one 1,600 ohm ringer telephone on a line with twenty 2,500 ohm telephones it will reduce them all down to 1,600 ohms. "B" contends that the only difference it makes is that it is difficult to ring the stronger by the lighter ringer. Which is right?

While in general the best results are obtained by having all the bells on a line of the same resistance, there is enough margin in the sensibility of a bell to make it ring very well under bad conditions. The addition of one or two 1,600 ohm bells to a 2,500 ohm line will not ordinarily be noticed, but to join a whole line of ten or twenty 1,600 ohm bells to a similar line of 2,500 ohm bells will not give good ringing on either line. It will affect the 2,500 ohm line worst. It is harder to ring a number of 2,500 ohm bells past a 1,600 ohm bell than vice versa.

Grounded Phantom Circuit.

Will you please tell me what would be the induction effect of a grounded phantom circuit five miles long with reference to ground return party lines on the same lead? The metallic circuit which we wish to phantom is of No. 12 iron, and well transposed. What would be the effect if this phantom circuit were used as a telegraph circuit instead of for telephones?

If you make a ground return phantom on the metallic line, as you suggest, you will get the usual cross talk between the phantom and the other ground return lines. It might be even a little worse. If you put a telegraph connection on this phantom it would be called a "simplex" telegraph circuit. It would transmit the clicks very loudly to the ground return party lines in the same lead, so that we do not consider it pracical. If all the telephone lines were metallic you could have simplex telegraph lines in the lead without trouble.

Cross-Talk Between Metallic, Common Return, and Grounded Lines.

We are having trouble with cross-talk. We have about 50 village telephones on a common return No. 9 copper, not grounded. Nine farm lines, all grounded, enter the board on a strip of jacks, all grounded on two No. 9 copper wires soldered to city water pipe. A metallic iron toll line comes in on the same strip of jacks. At times, when village telephones are connected to the toll line, the cross-talk from the farmers lines connected to village telephones will be so strong as to almost drown voices on the toll line. There is some cross-talk on the toll line at times,

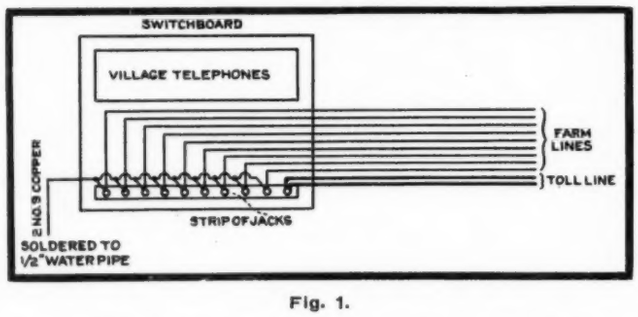


Fig. 1.

when no other jack of the strip is plugged, but we think that comes from other stations. The farm lines are in bad shape, owing to recent heavy storm, and they are working heavy on account of being on fences, on the ground, and otherwise, but cannot be repaired now for the frost.

Fig. 1 shows the sketch sent in by the correspondent. The conditions existing as described are shown diagrammatically in Fig. 2, it being supposed that a village telephone is connected to the toll line, and a farm line to a village line. It will be seen that the connection between the toll line and village telephone puts one side of the former in connection with the common return. This alone

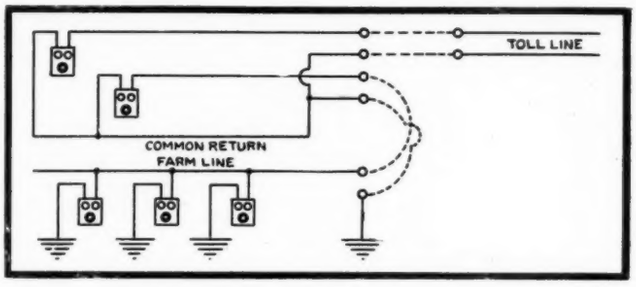


Fig. 2.

tends to unbalance the toll line, as the capacity to earth of the return is greater than that of one subscriber line. But the plugging in of the farm line puts the toll line directly to ground, and it is no wonder that cross talk occurs. There should be a good repeating coil in the cord circuit connecting other lines to the toll line.

Battery for Switchboard.

(1) Will the crowfoot or other forms of wet battery answer as well as dry battery on the switchboard for talking? (2) Will they do for ringing with a pole changer? (3) Will the wet battery be any cheaper?

1. For the supply of operators' transmitters the wet battery will be cheaper and better in the long run.

2, 3. For running the vibrator of the Warner type pole-changer, wet battery is the best. For the main, or ringing battery, dry cells are cheapest and best.

LETTERS ON PRACTICAL SUBJECTS

An Agreeable Letter on Soldering Troubles.

I note in your paper, which to me is very interesting, that you request short letters on telephone troubles, and will pay for such as are published. I have a big little trouble, but before I tell you about it, it must be mutually agreed that neither of us is to receive one cent for our services and since I was brought up to never laugh or make fun at the misfortunes of others, I shall insist that there be no demonstration of mirth in connection with my troubles.

Agreed, you say? All right. My trouble is soldering. Think of it! Almost every time you stir in the telephone business, there is a soldering job.

Our rural company has been in business four years, and during that time I have never been able to make one atom of solder or any number of atoms stick to anything except in a few cases when it did stick to the soldering copper, and so far as I know, is still sticking there. I have used muriatic acid and resin; have tried hard solder and soft solder. I have bought soldering coppers of all shapes and sizes only to verify the scientific law that "Like causes produce like results."

Yesterday one of our subscribers dropped his receiver, and jerked off the cord tips. Here was another soldering job. This morning I ate a light breakfast to insure a normal nervous system, got out the soldering outfit from force of habit, rolled up my sleeves, and was ready. In a short time, about 10 inches of wire solder had been melted and dropped on the joint, thence to the table. Then I put on more acid, twisted my mouth into a compound semi-circle

and singled out one of the most attractive globules on the table and tried to induce it to adhere to the copper so that I could deposit it on the joint. Well I chased that little molten ball the length of a 16-foot board, where I left it without a scar. Then I dipped the hot copper in the acid and resin, got a fresh piece of solder, a fresh determination and a fresh start. This time as fast as the solder melted it stuck to that copper like death to a dead nigger. Try as I would I could not induce it to let go. Then I got another copper and repeated the whole performance.

Now, Mr. Editor, I shall not commit suicide except as a last resort. In the meantime any information from any source which will enable me to make a soldered joint, will be gratefully received and I will remit to you the price of a year's subscription to "Telephony," or better still, I shall be glad to remove my hat to the person, whether male or female, who will devise some method by which the multitude of telephone and switchboard connections may be made without the use of the everlasting and infernal solder.

Corydon, Pa. A. W. Reeves,
Secy. Kinzua Telephone Company.

Cross-Talk from Another Line Being Grounded.

On our farmers' lines we have a four-party magneto selective ground ringing system. Parallel to three of our lines there is another line which uses bridged ringing. One of our lines had cross-talk trouble for a long time with this bridged line. The line in trouble did not parallel the other line for more than one-quarter of a mile, and at the nearest point the wires were about two feet apart.

We worked on this for some time, when it occurred to me that our lines were grounded all the time through a high resistance, and if their line should get grounded very close to ours it could make the trouble. The bridged line and our line in trouble, both had telephones in the same house, and both telephones were using practically the same ground. Our ground was directly on the line through bell coil, both of their lines were attached to the arrester and then to ground. I examined their carbons and found them plastered together, making their lines dead grounded. I cleaned them and put them back properly. Since then we have had no more cross-talk on our lines.

F. D. P., N. Y.

Auxiliary Signaling Device for Long Party Lines.

We have several long party lines using local battery for talking, but terminating in a 24-volt common battery switchboard. Two subscribers about ten miles distant from the central office could not operate the supervisory signals on the toll board. These signals have a resistance of 60 ohms. Since we have no booster battery, we use the following method to overcome the difficulty:

As shown in Fig. 1 we installed, in series with one side

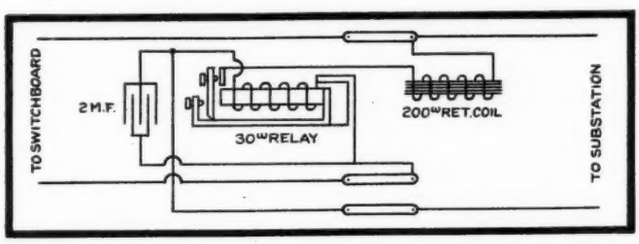


Fig. 1. Diagram of Circuit of the Auxilliary Signaling Device.

of the line, at the main distributing frame, a 30 ohm. relay. When energized by the removal of the subscriber's receiver, this relay bridges a 200 ohm retardation coil across the line, between the switchboard and the relay. A 2 m. f. condenser is connected across winding of the relay, to prevent the retardation of the alternating voice currents. This apparatus has been in use for about three months, and has given complete satisfaction.

Niagara Falls, Ont. M. O. Neil.

Telephone Operator Switches on Special Street Lights to Call Police.

Owing to there being no one on duty at the police station at Nelson, B. C., during the evenings, it was found very difficult should a call be put in for a police officer, to locate him while on patrol duty.

City Electrician Brown and District Superintendent G. C. Hodge of the B. C. Telephone Company hit upon a novel scheme. Should a call be put in for the police office, and the operator be unable to raise anyone there, she turns a switch suspended close to the key board, which lights a series of red lamps all over town, and any policeman, seeing those lights burning, immediately goes to the nearest telephone and inquires who was calling. Several trials have been made of the system, and the police have always called up inside of two or three minutes. This plan could be adopted with good results in many cities.

G. C. Hodge.

QUESTIONS FOR THE FIELD

Plenty of "QUESTIONS" are on hand. We are waiting for ANSWERS to the question published on page 473 last week. Who will send the first answer? SEE PAGE 473, April 17, TELEPHONY! Send your own question with it!

Identifying a Lost Dog by Telephone.

A recent issue of the Toronto, Can., *Mail and Empire* gave a practical illustration of "His Master's Voice" except that a telephone receiver took the place of the phonograph. The item is as follows:

"The ownership of a lost dog was established in a remarkable manner by the Frankfort police yesterday, the dog, having recognized its master's voice over the telephone.

"Conrad Maier, a grocer, living in a suburban town, informed the police a few days ago that his pet terrior, Ami, had been stolen. Yesterday the police telephoned to Maier that a dog answering Ami's description had been found in the possession of a suspicious looking stranger, who asserted that he had owned the animal for a long time.

"The telephone receiver was then placed at the dog's ear, and Maier was instructed to talk to the animal in familiar language. The dog immediately gave every sign of recognition and barked with joy.

"The pseudo-owner was so terrified by the animal's sagacity that he immediately confessed that he had stolen the dog."

W. Lee Campbell Presents Paper at Meeting of the Franklin Institute.

The March Journal of the Franklin Institute contains a paper presented at the meeting of the Electrical Section, held at Philadelphia, January 21, 19909, by W. Lee Campbell, general superintendent of the Automatic Electric Company. It deals principally with the history of the Automatic switchboard and the progress of its introduction as an operating system in various cities in the country. The fundamental principles and apparatus are briefly described, and illustrated.

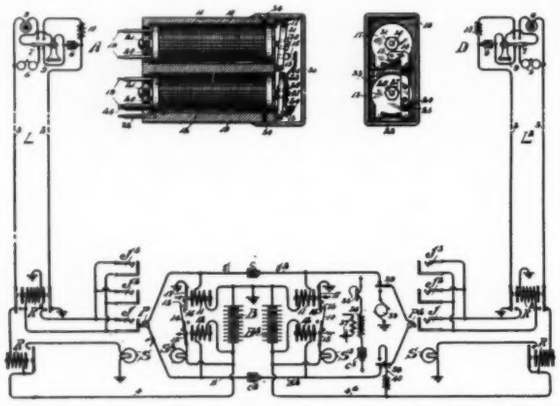
Telephone Patents

Conducted by Max W. Zabel

RELAY.

W. W. Dean, Chicago, Ill., patent 917,017, April 6, 1909, assigned to Kellogg Switchboard & Supply Co., Chicago.

The relay which is claimed in this application consists of two coils 11 and 12 in a single shell. When relay 12 oper-

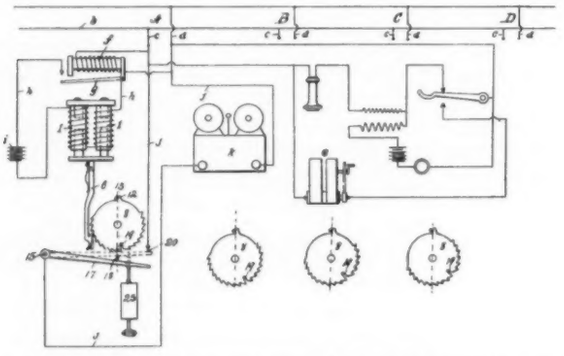


ates, it closes the circuit, but when relay 11 is also actuated, the circuit at contact points 15 and 16 is again opened. This will be clear from the illustration. To close the circuit only relay 12 may have current.

TIME RELAY FOR SELECTIVE SIGNALING.

H. A. Watson, Kendallville, Ind., patent 917,916, April 13, 1909.

This selective signaling system comprises a magnet 1, designed to actuate the stepup wheel 8, which has a notch 19 for each station angularly displaced. The lever 17 completes the connection with the contact point 20, when the catch 18 of the lever can enter the notch 19. A dashpot 23 prevents the rapid movement of the lever. A spring unites the bar 6 and the lever 17, tending to draw up the lever 17 whenever the magnet 1 is energized. Means are provided

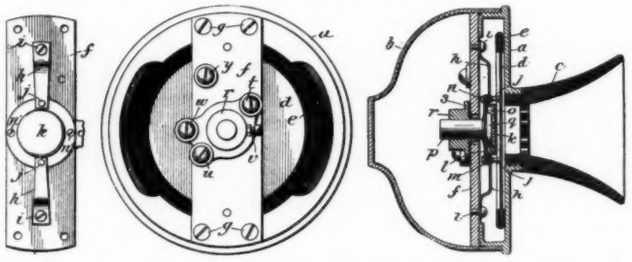


to lock the dial 8 in position after each impulse, which locking means are restored by the lever 17 after the call is complete.

TELEPHONE TRANSMITTER.

C. T. Mason, Sumter, S. C., patent 917,633, April 6, 1909, assigned to the Sumter Telephone Mfg. Co., Sumter, S. C.

This transmitter comprises the front plate *a* and the back cup *b*, together with a bridge *f* mounted on two lugs of the front plate *a* The carbon-carrying cup *k* consists of the pan *o* with a mica closure *l* and an annular ring *m* together with screws *j* and nuts *n*, which hold the pan, annular ring and the mica disk together. These screws *j* also clamp dampening and supporting springs *h*, which are fixed to the bridge *f*. The electrode *p* is securely held in the bridge, as shown, being also insulated therefrom. Thus, the pan



is designed to move with the vibrations of the diaphragm *d*, which acts against the screws *j*, but does not touch the carbon-carrying cup at any other point. The diaphragm is not otherwise supported

RINGER FOR TELEPHONE SETS.

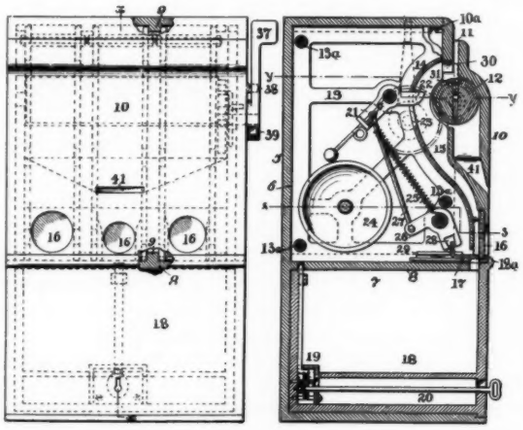
Klas Weman, Buffalo, N. Y., patent 917,214, April 6, 1909.

This ringer consists of the ordinary coils and magnet, and an armature which, by means of a flexible bar, is fastened to the upper end of the ringer. The bell hammer rod is fastened to the armature. The ringer is designed for harmonic systems.

TELEPHONE TOLL BOX.

W. T. Ott, Philadelphia, and J. R. Douglass, Atlantic City, N. J., patent 917,115, April 6, 1909, one-third interest assigned to Wm. E. Gregg, Philadelphia

This invention consists of a toll box constructed in a sufficient number of sections to permit of the required



number of coins, each section showing what is comprised between the walls 8 and 10, and each such section being removable from the toll box. A gong 24 is provided in each section. The object of making the parts independent is to facilitate repairs. The coin is received by the roller 12, which permits it to pass half way through the roller unless the coin is too small, having been worn, in which case it passes out of the opening 41. On the other hand, if it is a proper coin, it actuates the lever 22, to send the signal after which the coin is deposited in the chute 15, back of the glass 16, where it can be seen. Insertion of the next coin then deposits the first coin by moving the slide 17.

In the Manufacturing Field

The McIntyre Motor Trouble Wagon.

The McIntyre motor trouble wagons, built and designed under the supervision of a practical telephone man, will greatly reduce the expense account of any telephone company, especially those who operate in rural districts, because the wider the area, the greater the saving in time that can

The Motor Trouble Wagon.

be effected by the use of the wagon. "Cut the time in half and do the work of three men with two men" is the slogan of the company. As shown in the illustration, the body of the wagon has a rear elevation built above and over the wheels. On this elevation several coils of wire can be carried, while underneath, in the box of the wagon, cross arms, pins, insulators and a tool kit can be stored away. Several poles, ladders, etc., can be carried.

The body of the wagon measures over all 9 ft. 6½ ins. by 4 ft. wide. Inside measurements, back of the driver's seat, are 6 ft. by 44 ins.

The sides of the body are bound with iron on the upper edges, while strap irons in the bottom give additional strength. The box or body is provided with a drop end gate, while a tool box is placed on the dash board in the front.

The chassis is built of the best grade of angle steel, hot riveted together. Two angle iron cross bars support the motor.

The transmission is attached to the engine by means of a flange on the end of the transmission shaft, bolted to the hub of the fly wheel. Bronze bearings are used in the crank shaft and the transmission, while the wheels are supplied with roller bearings. The motor is a double opposed horizontal off-set type, of 18 horsepower, having a 4¾-in. cylinder by 4¾-in. stroke. A mechanical oiler provides lubrication. The drive is by side chains to both rear hubs. Full elliptic springs are used and the brakes are of the external contracting type. The wheels are 38 ins. with 1⅜-in. solid rubber tires. The wagon is adapted alike for repairing installatin and construction work.

The K-B Lockout System.

The Dayton Telephone Lockout Manufacturing Company reports that long continued operating tests, under practical conditions, on its "K-B Lockout System" have shown gratifying results.

This type of lockout telephone is made in two styles—one operating electrically and the other mechanically. These two styles can be operated from the same switchboard, without changing central office equipment or making any other expensive additions.

The main features claimed for the K-B system are simplicity, durability, accuracy, and economy. The switchboard operator has control of the line at all times, while subscribers are assured of privacy against listening of other parties, by the operation of the lockout feature. An emergency signal can, however, be sent to "Central" without disturbing the line.

Among strong features of this system, as claimed by the manufacturers, are its adaptability to working on a considerable variation of battery voltage and its ability to operate on metallic, common return or grounded lines. When a metallic line is used no ground is needed to operate the lockout mechanism.

The successful working of the features which the manufacturers claim for this instrument are said to have been demonstrated by operating men who have used the system in giving satisfactory service to their subscribers.

The system is manufactured at Dayton, Ohio, by the Dayton Telephone Lockout Manufacturing Company. The officers are: C. S. Billman, president; D. W. Kneisley, vice-president; W. C. Baker, secretary-treasurer.

THE STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY has just issued Pamphlet No. 14, which illustrates and describes its No. 896 compact type series and bridging dry battery wall telephone and its two-piece desk telephone. The descriptions are unusually complete and clear. The prices of various sets of these two types of telephones are given.

EDWARD T. BANES & COMPANY, Ogontz, Pa., have issued a folder describing a telephone cord protector which is said to save time, trouble and money. The cord protector is made of hard rubber, and is placed upon the cord at the point where it enters the plug.

W. N. MATTHEWS & BRO., St. Louis, Mo., have issued an interesting statement "On the Advantages of Anchoring without Digging in Usual Places." It relates especially to

Installing a Matthews' Anchor at the Border of a Sidewalk.

the advantages of the Matthews' anchor if used under exceptionally difficult conditions. An illustration shows how one trying situation was met.

In last week's issue of TELEPHONY on page 476, reference was made to the Slate Belt Telephone Company, of Flat River, Mo., while the correct name is Lead Belt Telephone Company.

Condensed News Reports

Officers of companies are earnestly requested to forward us promptly all financial and other statements as soon as issued and any items of interest as to their plants and systems

PERSONAL.

MR. R. E. MERRITT, of Winchester, Ky., has been elected manager of the Old Kentucky Telephone Company at Lexington, Ky.

MR. WILLIAM TATUM has been appointed local manager for the Joplin, Mo., exchange of the Missouri & Kansas Telephone Company.

MR. J. H. BROOKS, Seymour, Ia., has been appointed manager of the Genoa-Seymour Telephone Company, with headquarters at Seymour.

MR. A. E. TERPENING, of Beulah, Mich., has been elected manager of the Benzie County Telephone Company, with headquarters at Benzonia, Mich.

MR. ELMER TOTTEN, of West Pittston, Pa., has accepted a position as local manager for the Commonwealth Telephone Company at Tunkhannock, Pa.

MR. W. G. KLINE, of Vinton, Iowa, has been appointed manager of the Farmers' Mutual Telephone Company's exchange at Dysart, Ia., succeeding Mr. C. E. Hughes.

MR. EUGENE B. KEMP, manager of the Penn Yan, N. Y., Telephone Company and also of the Watkins Telephone Company, has been transferred to Corning, N. Y.

MR. E. M. JACKSON, formerly manager of the Joplin, Mo., exchange of the Missouri and Kansas Telephone Company, has been made district manager, with headquarters at Joplin.

MR. J. D. WATSON, manager of the Cumberland Telephone Company's local exchange at Layette, Miss., has been transferred to Natchez, and is succeeded by Ernest Erwin of Natchez.

MR. C. A. PIKE, manager of the Interstate Telephone Company, of Little Falls, N. Y., has resigned to accept the position of manager of the Fort Worth Telephone Company of Fort Worth, Texas.

MR. JAMES E. BRAILEY has been appointed general manager of the Home Telephone Company, of Detroit, Mich., to fill the vacancy caused by the resignation of Mr. A. E. Barker, which took effect April 1.

MR. JOHN M. POWELL, formerly manager of the Shamokin division of the American Union Telephone Company, has been promoted to the managership of the Columbia and Montour counties division of the same company.

MR. E. J. HOLIHAN, for several years manager of the Michigan State Telephone Company at Owosso, Mich., has been made district manager for the company, with headquarters at Lansing. Mr. W. J. Allen, from Holly, has been made manager of the Owosso exchange.

MR. A. B. CONKLIN, treasurer of the Streator, Ill., Independent Telephone & Telegraph Company, and of the People's Home Telephone Company of Leavenworth, Kan., with offices in Aurora, Ill., has accepted the position of vice-president and general manager of the Independent Telephone & Telegraph Company, of Atlanta, Ga. He will have the entire charge of the financial end and the management of the company.

NEW COMPANIES.

Through a typographical error in last week's issue, the Baldwyn Home Telephone Company was located at Baldwin, Mass., instead of at Baldwyn, Miss.

BELLEVILLE, ARK.—A new telephone company was recently organized here, to be known as the Belleville Telephone Company. About 40 miles of line will be constructed in various directions from Belleville. The officers are: W. G. Page, president; J. W. Wilson, manager; W. L. Cloninger, secretary and B. T. Brown, treasurer.

BAKERSFIELD, CAL.—The Farmers' Mutual Telephone Association has been incorporated to take charge of several of the farmers' lines in this locality and insure better service. The company is capitalized at $4,000 and the incorporators are W. W. Frazier, R. S. Ashes, D. Hirshfield, Milo G. McKee and James Herod.

RIVERSIDE, CAL.—The incorporation of a new company to be known as the Corono Union Telephone Company, has just been announced. The company is capitalized at $25,000, and the incorporators are J. G. Jameson, E. J. Generaux, G. E. Snedecor, C. M. Scoville, W. L. Peeler, H. A. Prizer and Daniel Lord.

WINDER, GA.—The New Timothy Telephone Company was organized recently at New Timothy Station by H. P. Hardigree, W. J. Russell, P. L. Duncan, E. V. Hardigree, M. A. Phillips, P. R. Smith and Truman Smith. They have poles up and the line to Atlanta via Winder will be completed within a short time.

KENNARD, IND.—The Kennard Telephone Company has been organized to install a telephone plant in Kennard. The company is composed of citizens of Kennard and the farmers of this section.

IOWA FALLS, IA.—The Oakland & Morgan Township Telephone Company has been organized to operate a system in those two townships. The company will incorporate and shares will be sold at $40 a share. O. C. Sime is president; S. H. Buss, vice-president; Ole Sevick, secretary, and H. J. Iverson, treasurer. O. B. Iverson, Ed Drury, J. H. Corcoran, H. Hanson and J. C. Jacobson are directors.

WALLINGFORD, IA.—The Wallingford Telephone Company has been organized with a capital stock of $6,000. The directors are J. P. Kennedy, P. S. Anderson, S. T. Sevatson, O. O. Anderson, O. C. Olson, G. W. Gilbertson and C. B. Larson.

WYOMING, IA.—J. S. Grills, G. W. Harney, F. P. Reed and several others have organized a company to be called the Tracy Telephone Company.

DETROIT, MICH.—The Interurban Telephone Company, of Brazil, South America, with principal offices in Detroit, has been organized to operate in the states of Rio Janeiro and Minas Graes in the United States of Brazil with a capitalization of $100,000. The incorporators are Chas. R. Davis, Walter B. Ford, R. C. George, Julian H. Harris and L. S. Trowbridge, Jr., all of Detroit. It has been incorporated at Parkersburg, W. Va., under the laws of West Virginia.

TWO HARBORS, MINN.—The farmers of Waldo and the new state roads, north of the city, have made arrangements for the organization of the Lake County Rural Telephone Company. L. D. Rose has been elected chairman and E. E. Cavelin, secretary, of the temporary organization. Shares will sell at $25, and a sufficient number were spoken for to insure the success of the company.

DONIPHAN, MO.—With a capital stock of $10,000 the Ripley County Mutual Farmers' Telephone Company has been incorporated by J. F. Klenn, L. Harris and A. P. Russell.

MORRILL, NEB.—A local telephone company has been organized in the Iowa Flats district, to be known as the Iowa Flats Telephone Company. The system is being put in rapidly. The officers are: President, Peter Vonberg; vice-president, Wm. Nichols; secretary, P. J. Smith; treasurer, Guy Shigley. Directors, H. E. Baird, C. N. West, J. C. Lewis.

LACONIA, N. H.—The Winnipesaukee Telephone Company of this place has been incorporated. The capital of the company is given as $180,000 and the incorporators are Jasper N. Keller, of Surrey; Fred W. Story, Hon. Wm. F. Knight and others, of Laconia.

ESSEX, N. Y.—The Essex-Willsboro Telephone Company has been organized for the operation of a system in Essex county. The directors are: E. W. Avery, L. C. Sheldon, and R. Stafford, all of Willsboro, and F. H. Sherman, of Essex.

ANAMOOSE, N. D.—With Charles Schultz as president, and Hugo Turcek as secretary, the Anamoose-Southern Telephone Company was recently organized. Lines will be built to the southwest.

BURLINGTON, N. D.—William J. Kluver, Henry A. Parrie, Daniel Baker and others of this place have organized to form the Burlington Farmers' Telephone Company. The company is capitalized at $25,000.

WILTON, N. D.—Farmers in the vicinity of Wilton have organized the Grass Lake Mutual Telephone Company, and elected Gabriel Thor, general manager; G. A. Hubbell, secretary; Oscar Backman, treasurer, and W. C. Jackson and Armond Thor, directors. The installation will begin just as soon as the material is received.

FREMONT, OHIO.—The farmers of Riley township have organized the Farmers' Mutual Telephone Company for the purpose of furnishing service in that section of the country on a co-operative basis. The officers are: Lewis Hirt, secretary; directors, Frank Hirt, Thos. De Canna, E. J. Martin, Lewis Hirt and George Meck.

HARRISONVILLE, OHIO.—The Harrisonville Independent Telephone Company has been incorporated with a capital stock of $10,000 by F. H. McCann and others.

HINTON, OKLA.—A new telephone company, which is to be known as the East Niles Telephone Company, has been organized with a capital stock of $1,500. The directors are: Wm. Woods, H. B. Tillinghast, J. C. Ridge, all of Niles.

PAWNEE, OKLA.—Farmers in the Lone Jack neighborhood have organized and formed the Cornstalk Telephone Company. The officers are: President, Jos. Krebs; secretary, Jap Lizar, and treasurer, C. F. Mercer.

WOODWARD, OKLA.—A new company known as the East Indian Creek Telephone Company, has been chartered with a capital of $1,000. D. E. Nelson, of Mutual, and P. C. Renfrow, W. F. Clovis and E. L. Layton of this place are the incorporators.

HILLSBORO, ORE.—The Washington County Telephone Company, with principal offices at Hillsboro, and with a capital stock of $25,000, was recently incorporated by O. G. Wilkes, George Stevens and George Schulmerick.

HILLSBORO, ORE.—The Independent Telephone Company has been reorganized and will be known as the Washington County Telephone Company. The incorporators are O. G. Wilkes, George Stevens and George Schulmerich. The company is capitalized at $25,000. A new cable system will be installed in the business district, and new poles will be placed throughout most of the district covered by the company's system.

LENTS, ORE.—With a capital stock of $3,000, C. Dann, O. B. Guisness and W. I. Price have incorporated for the construction and operation of a telephone system which is to be known as the Lents Home Telephone Company.

FRANKLIN, PA.—A new telephone company has been organized at this place, to be known as the Floyd Telephone Company. It will build a line from this place to Rockland.

YORK, PA.—The Conewago Rural Telephone Company has been organized to construct a line to connect with the York Telephone & Telegraph Company. The officers are: E. S. Hykes, president; Jacob Bear, vice-president; S. T. Peeling, secretary, and W. H. Gross, treasurer.

PEEVER, S. D.—A. M. Anderson, Berger Bergerson, John M. Hines and others of this place have incorporated a company to be known as the Farmers' Telephone Company. The capital stock of the company is $7,000.

PIERRE, S. D.—A. M. Anderson, Berger Bergerson, John M. Hines and others have filed articles of incorporation for the Farmers' Telephone Company of Peever, with a capital stock of $7,000.

CARTHAGE, TENN.—The Carthage Home Mutual Telephone Company has recently been incorporated by J. R. Curtis, J. B. Chapman, W. B. Aldred, F. Swope and W. D. Gold with a capital stock of $5,000.

NASHVILLE, TENN.—Articles of incorporation for the Warren County Telephone Company have been filed by W. S. Ross, J. L. Ross, J. C. Biles, John B. Biles and William Biles, with a capital stock of $200.

HAYMARKET, VA.—The Bull Run Telephone Company of this place has filed articles of incorporation with a capital stock of $5,000. The officers are: President, Wm. Beverley, of Broad Run; vice-president, Lee Howdershell, of The Plains; secretary-treasurer, P. D. Brawner, of Broad Run.

RICHMOND, VA.—The Central Telephone Company of Lovingston, Nelson county, with F. M. Horsley as president; J. C. Clarkson, vice-president; E. Carter, secretary, all of Lovingston, has been incorporated with a capital stock of $5,000.

HORICON, WIS.—The Horicon Telephone Company has been incorporated with a capitalization of $5,000 and Gustav A. Zemple, Frank Hodden and Frank S. Forbes are the incorporators.

ALAMEDA, SASK., CAN.—The Alameda Rural Telephone Company has been organized here and arrangements have been made for building about 60 miles of telephone lines through the surrounding districts. A. D. Truscott is among those who are behind the enterprise.

GOVAN, SASK., CAN.—The Govan Telephone Company is being organized here and will be incorporated in a short time.

MANOR, SASK., CAN.—A rural telephone company will be organized here and construction of a system will be started in spring. Mr. W. G. Bell is interested.

MELVILLE, SASK., CAN.—The rate payers, among them being Leno Benoit, are arranging for the organization of a rural telephone company.

TREGARVA, SASK., CAN.—The Tregarva Union Rural Telephone Company has been organized and will begin construction of a telephone system in spring. It is capitalized at $5,000.

WASCANA, SASK., CAN.—The Wascana Rural Telephone Company was recently incorporated with a capital stock of $5,000, and will begin construction of a system this season.

FINANCIAL.

FRANKFORT, KY.—The capital stock of the Harlan Telephone Company has been increased from $2,500 to $4,000.

SAND CREEK, MICH.—The Sand Creek Telephone Company has increased its capital from $2,000 to $3,000.

COMFREY, MINN.—The directors of the Farmers & Citizens Mutual Telephone Company, who met recently, declared a 10 per cent dividend. This was highly satisfactory to stockholders, being the same as paid last year.

NORFOLK, NEB.—The Norfolk Long Distance Telephone Company contemplates making extensive improvements and extensions to its lines, and for this reason is offering to the public locally $10,000 worth of gold bonds, which are a first mortgage on the property, and are recorded in all counties where the company operates. These gold bonds are sold in $100 denominations and pay 6 per cent interest, payable in April and October of each year, at the Nebraska National Bank, Norfolk.

LANCASTER, OHIO.—The Lancaster Telephone Company reports good progress during the past year. It was intimated at the recent annual meeting that a resumption of the dividends on the common stock would not be far off.

MADISON, WIS.—The Pleasant Valley Telephone Company has filed an amendment increasing its capital stock from $4,000 to $5,000.

FRANCHISES.

STERLING, ILL.—The Green River Telephone Company, expects to build a line from Harmon direct to Amboy, and also a metallic line to Walnut, in the spring.

MARTINSVILLE, IND.—The Martinsville Telephone Company has petitioned the city council for an amended franchise. They request that the franchise be extended for 21 years, and that a slight increase in rates be allowed as the number of subscribers increase. Upon consideration of these requests, the company will rebuild the plant and expend about $25,000 in improving the service, the work to begin within sixty days after the granting of the petition. It is believed the proposition will appeal to the council and that favorable action will be taken on the petition.

HILLSBORO, KAN.—The Home Telephone Company is constructing a long distance line through Hillsboro.

COLUMBIA, LA.—The town council of Columbia has granted a twenty-five-year franchise to the Home Telephone Company of Monroe, to construct and operate a telephone system in Columbia.

PATTERSON, W. VA.—The National Telephone Company has filed an application with the town clerk for an extension of its line through this place. A fifty year franchise is desired.

CONSTRUCTION.

FORT MORGAN, COL.—The Riverside Telephone Company is constructing a line from Otis to Burdette, and will probably extend a line to Akron, and possibly further.

ELMOVILLE, ILL.—The board of directors of the Massbach Telephone Company is planning the construction of a line from Elmoville to Stockton.

COUNCIL BLUFFS, IA.—The Independent Nebraska-Iowa Long Distance Telephone Company, which recently took over the control of the Mills County Telephone Company, contemplate large extensions to the toll lines, and will build an exchange at Neola, Ia.; also a long distance copper line east of Neola along the Milwaukee Railroad.

DES MOINES, IA.—It is reported that the Mutual Telephone Company will expend in the neighborhood of $250,000 in improvements and extensions to its lines.

IOWA CITY, IA.—The Johnson County Telephone Company is making preparations for many extensions and improvements to its lines this season.

MUSCATINE, IA.—The Mississippi Valley Telephone Company will install new equipment in its local exchange very soon.

COLUMBUS, KAN.—At a recent meeting of the Cherokee County Mutual Telephone Company, it was decided to build a trunk line from Columbus to Chetopa by way of Sherwin, Hallowell and Faulkner; likewise one from Columbus to Neutral.

BELLEVILLE, KAN.—The Belleville Independent Telephone Company is improving its local service materially. A new switchboard is being installed at a cost of $2,500, and preparations are being made to build copper lines to Mahaska and to the Jewell county line. This work will cost about $15,000.

HARTFORD, KAN.—The Strawn Telephone Company, of which Mr. Williams is owner, is planning extensive improvements to its system this spring.

STOCKTON, KAN.—The directors of the local telephone company at this place have ordered a new switchboard which will be installed within a short time. Fred Shultz is secretary.

FT. THOMAS, KY.—The Citizens' Telephone Company is installing the switchboards in its new exchange and the system will be in operation within a very short time.

PARMA, MICH.—The Independent telephone company in this place will build extensions to several lines which do not reach Parma, so as to make them enter the town. It will also build a new trunk line from Parma to Springfort, Devereux and Tompkins.

ARGYLE, MINN.—The Argyle Telephone Company will extend its lines from this place as far as Red River, and also from Warren, Minn., to Toldahl.

FAIRMONT, MINN.—The Fairmont Telephone Company has bought material to rebuild its line between Jackson and Heron Lake. A heavier wire will be used in the construction of the new line.

WHITE EARTH, MINN.—The White Earth Telephone Company is preparing to extend its lines to Waubun, Ogema and Beaulieu.

BRAYMER, MO.—The Central Telephone Company will build 19½ miles of telephone line. W. H. North, R. R. No. 6, Norborne, Mo., is secretary of the company.

SOUTH OMAHA, NEB.—E. E. Ebersole, president of the Independent Telephone Company, reports that just as soon as the weather permits, work will begin on the construction of an exchange building, and that the entire system will be hurried to completion. A conduit system is to be laid in the business district, and a wire line throughout the residence.

HERKIMER, N. Y.—The Herkimer County Telephone Company, which was recently purchased by C. H. Poole of Utica, will expend about $25,000 on reconstructing its lines.

HENDERSON, N. C.—The Home Telephone & Telegraph Company has commenced the rebuilding of its copper toll lines from Rocky Mount to Spring Hope. After this work has been completed, the company contemplates rebuilding and making numerous changes in the toll line from Rocky Mount to Tarboro.

LANGSFORD, N. D.—Besides many smaller extensions to be made to its lines, the Farmers' Telephone Company will build a line to Grano.

VELVA, N. D.—The new Farmers' Telephone Company, which was recently organized, will construct a line between Velva and Max.

YAQUINA, ORE.—The stockholders of the Yaquima Bay Mutual Telephone Company have under consideration many improvements and extensions to the company's lines.

HAYES, S. D.—The Homestead Telephone Company is planning many extensions to its lines this spring.

JACKSONVILLE, TEX.—W. H. Sory, proprietor of the local telephone exchange is making extensive improvements to the system, on both local and rural lines. Sixteen lines now go out into the rural district and others are being planned, so it will not be long before the entire surrounding district will be in connection with Jacksonville.

VELASCO, TEX.—D. A. Todd, of Gilmer, has been canvassing this place for the purpose of securing subscribers to a local telephone exchange. He has already secured sufficient to warrant the installation, and work will begin at once.

PETERSBURG, VA.—The Dinwiddie Telephone Company is making arrangements to further extend its lines throughout the county. It now has lines to all principal points in the county.

SPOKANE, WASH.—The Southwest Telephone Company is stringing wire and setting poles for a line between Hunters and the mouth of the Spokane. The line is expected be in operation within thirty days.

FAIRMONT, W. VA.—The Consolidated Telephone Company will expend about $55,000 in extensions and improvements in the Clarksburg district.

OAKFIELD, WIS.—The directors of the Oakfield Telephone Company have authorized the building of a new line from Oakfield to Elgin, Wis., and work will begin as soon as possible.

SHEBOYGAN FALLS, WIS.—The Citizens' Telephone Company is installing a new switchboard in its exchange, and is making other improvements.

BELLE PLAINE, SASK., CAN.—Under the management of John Poyser the construction of the Stoney Beach Telephone Company's proposed system will be started the last of the month.

BIENFAIT, SASK., CAN.—The Bienfait Rural Telephone Company, recently incorporated, has decided to build 69 miles of line this year, with branches to surrounding places. Ira F. Brown, of Bienfait, is interested.

CRANBROOK, B. C., CAN.—The Board of Trade has petitioned the Provincial Government to build a telephone line from this place through the Kootenay country.

FERNIE, B. C., CAN.—The Cranbrook Telephone Company, of Cranbrook, B. C., is completing arrangements for the construction of a telephone line from this place to Lethbridge, Alta.

GREY, SASK., CAN.—The Grey-Milestone Telephone Company is contemplating the construction of 24 miles of telephone line this season.

WILCOX, SASK., CAN.—The Wilcox Rural Telephone Company, of which A. E. Hadley is manager, will construct its system this spring.

ELECTIONS.

WILLIAMSFIELD, ILL.—The Williamsfield & Elmore Telephone Company held a meeting recently and elected the following officers: President, N. N. Tucker; vice-president, W. H. Oberholtzer; secretary-treasurer, C. H. Pulver.

GARRISON, IA.—The Garrison Mutual Telephone Company held its meeting recently and elected the following board of directors: F. C. Carle, L. F. Heiden, C. E. Bryant, B. A. Harwood, E. Urice, S. L. Gulick and J. E. Grimm. The officers are: F. C. Carle, president; C. E. Bryant, secretary, and L. F. Heiden, treasurer.

SOUTH CEDAR, IA.—C. M. Millhone was elected president and H. L. Bowman secretary and treasurer of the Union Valley & West Liberty Telephone Company at the recent annual meeting.

LOWELL, KAN.—At the annual meeting of the Lowell Telephone Association held recently, the following officers were elected: J. C. Hobson, president, and F. P. Simmons, secretary-treasurer.

PRETTY PRAIRIE, KAN.—The Ninnescah Telephone Company held its annual meeting recently and elected Joseph Henry, president; Charles Daffron, secretary-treasurer. Directors: Joseph Graber, William Roberts, Edward Mercer and H. V. Smith.

QUINTER, KAN.—At the annual meeting of the Park Telephone Company the following officers and directors were elected: President, R. R. Lewis; vice-president, E. B. Ginn; secretary-treasurer, A. N. Barber. Directors: A. E. Bissell, W. H. Falk and Carey Ginn.

ELIZABETHTOWN, KY.—The Elizabeth & Roanoke Telephone Company has been reorganized with the following officers: Hardin Atherton, president; J. R. Redman, vice-president; G. A. Kerrick, secretary; James Holland, treasurer, and J. W. Spencer, E. M. Jackson and T. G. LaFollette, directors.

BLAINWELL, MICH.—The stockholders of the Norton Telephone Company met recently and elected as officers for the ensuing year: T. A. Norton, president and manager; R. F. Webster, vice-president; R. Haffenden, secretary-treasurer. Trustees, A. H. Jackson, E. Honeysett, Charles Bingham and J. Flick.

COMFREY, MINN.—The directors of the Farmers' and Citizens' Mutual Telephone Company met recently and re-elected its old officers, who were as follows: President, Dr. J. S. Shrader; vice-president, A. G. Anderson; secretary, Dr. C. A. Hintz, and treasurer, Wm. G. Frank.

CALLAWAY, NEB.—At the annual meeting of the Callaway & Arnold Telephone Company the following officers were elected: President, O. C. Murphy; vice-president, J. J. Seany; secretary, Alfred Schreyer; treasurer, N. M. Morgan. These and M. A. Butler constitute the board of directors.

MOOREFIELD, NEB.—The following officers were elected at the annual meeting of the Moorefield Farm & Ranch Telephone Company which was held recently. A. La Bounty, president; I. N. Dempcy, secretary, and R. Neihenke, treasurer. It is expected that it will extend lines out of Curtis this season.

MALINTA, OHIO.—Officers for the Mutual Telephone Company have been elected as follows: President, L. T. Knipp; secretary, Henry Geist; treasurer, J. A. Smith. Directors, C. E. Wheeler, Edward Detmer.

McKINNEY, TEX.—The McKinney Telephone Company held a meeting recently and elected as officers: S. O. Scott, president; J. E. Farnsworth, vice-president; F. E. Bedlow, secretary, and J. S. Heard, treasurer.

MANITOWOC, WIS.—The Manitowoc & Western Telephone Company at its recent annual meeting elected members of the board of directors as follows: T. H. Meany, W. Link, Walter Killen, George Wittman and Frank Schaeffer. T. H. Meany is president and Geo. Wittman, manager.

MISCELLANEOUS.

CUTHBERT, GA.—F. H. Davis, owner of the local telephone systems of Cuthbert, Shellman and Edison, as well as several long distance lines out of Cuthbert, has sold his interests to Mr. O'Farrell of Athens, who took charge April 1st. It is said the sum paid for the system was $20,000. The new management proposes to further perfect and enlarge the system.

FT. WAYNE, IND.—It has been reported by an official of the Home Telephone Company that the company is now serving about 400 more subscribers than at this time last year. This report shows that the company is in a very healthy condition, as previously the yearly growth has not amounted to more than two or three hundred subscribers.

COUNCIL BLUFFS, IA.——By a deal just consummated, the property of the Mills County Telephone Company passes into the hands of the Independent Nebraska-Iowa Long Distance Telephone Company. The new company will begin operations with about 1,100 telephones, with stations in Glenwood, Malvern, Silver City, Hastings and Emerson.

DETROIT, MICH.—The Interstate Telephone Company has sold its plants at Wyandotte and Trenton to a local company recently organized under the name of the Detroit River Telephone Company. The plants are in a flourishing condition, now having over 600 telephones.

FRAZEE, MINN.—The Frazee Telephone Exchange has been purchased by the Turner & McNairy Telephone Compan

PROSSER, NEB.—The Prosser Telephone Company, formerly a sublicensee of the Bell company, has disconnected the Bell lines and made connection with the Hastings Independent Telephone Company.

NELSON, NEB.—The Nuckolls County Telephone Company, of this place has contracted with the Lincoln Telephone & Telegraph Company for long distance service; also a No. 10 copper circuit will be immediately strung between Hebron and Nelson, which will connect the Nuckolls County Telephone Company with the general toll line systems.

BILLINGS, OKLA.—D. Y. Smith, of Enid, purchased the telephone exchange in Billings for $22,000.

GUTHRIE, OKLA.—M. M. Jacobs, who on Feb. 1 shot and killed Arthur Strohl, manager of the telephone exchange at Aline, has been sentenced to serve 99 years in the penitentiary. The shooting resulted from a quarrel over a delinquent account, as was reported in TELEPHONY shortly after the affair took place.

ANGLETON, TEX.—James Ferris, formerly of Vieman, Mo., has come to Angleton with the purpose of starting a new telephone exchange. He is meeting with much encouragement, and will undoubtedly succeed in the project.

ABERDEEN, SASK, CAN.—The Aberdeen Telephone Company, Ltd., has leased its system and rights to K. G. Moffatt for a period of five years.

UNDERGROUND.

DES MOINES, IA.—An underground telephone system will be installed at Fort Des Moines during the coming year. The army signal office is taking steps to extend the telephone systems at interior posts as well as garrison coast artillery posts, for which there is an available appropriation of $30,000. The principal work now under way is at Fort Myer, Fort Riley and Chickamaugua. Later it will be started at Forts Des Moines and D. A. Russell.